

Symptomatic therapy of multiple sclerosis



**Peter Flachenecker, MD, Chair
Neurological Rehabilitation Center Quellenhof
Bad Wildbad, Germany**

Symptomatic treatment of MS

- **Spasticity**
- **Fatigue**
- **MS-related pain syndromes**
- **Bladder symptoms**
- **Bowel dysfunction**
- **Sexual dysfunction**
- **Ataxia and tremor**
- **Cognitive dysfunction**
- **Depression**
- **Paroxysmal symptoms**
- **Oculomotor symptoms**
- **Dysarthria and dysphonia**
- **Dysphagia**
- **Epileptic seizures**



Henze et al., Eur Neurol 2006

Therapeutic measures

- **Medication**
- **Non-medical therapies**
 - Physiotherapy, physical therapies
 - Occupational therapy
 - Speech therapy
 - Psychotherapy
 - cognitive training
- **Rehabilitation**



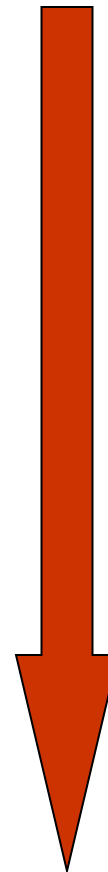
Mobility and spasticity

Recommendations for spasticity

- ▶ Search for hidden problems, which may increase spasticity (e.g. urinary tract infection, pain, fever)
- ▶ The mainstay of antispastic treatment is regular and intensive physiotherapy
- ▶ If spasticity cannot be controlled sufficiently by physical therapy alone, baclofen or tizanidine should be used. Daily doses should be gradually increased, the maintenance dose should be adjusted according to the individual patient's course and severity of spasticity during the day. Gabapentin may be effective, too. Other oral antispastic drugs such as benzodiazepines and dantrolene should be used only as second-line treatment and on short term due to their common adverse effects.
- ▶ In severe spasticity of adductor muscles, treatment with botulinum toxin is helpful. Continuous intrathecal baclofen infusion should be used only in cases with severe and otherwise uncontrollable spinal spasticity.
- ▶ Application of oral cannabinoids and of intrathecal triamcinolone acetonide outside prospective clinical trials should be restricted to centres with special experience.

Therapy of spasticity

- **regular physiotherapy**
- **oral antispastic drugs**
 - Baclofen (Lioresal®)
 - Tizanidine (Sirdalud®)
 - Tolperisone (Viveo®)
 - Cannabis (Sativex®)
- **invasive therapies**
 - Botulinum toxin
 - Baclofen intrathecally
- **not established measures**
 - Triamcinolon (Volon A®) intrathecally



Sativex[®]

- **Cannabis aerosol
(whole plant extract)**
- **572 MS patients treated for 4 weeks**
- **241/572 (42 %) showed reduction of
spasticity of about 20 %**
- **Positive effects on spasticity,
spasms, sleep and 10 m walking test**
- **Approved in UK, Spain and Canada**

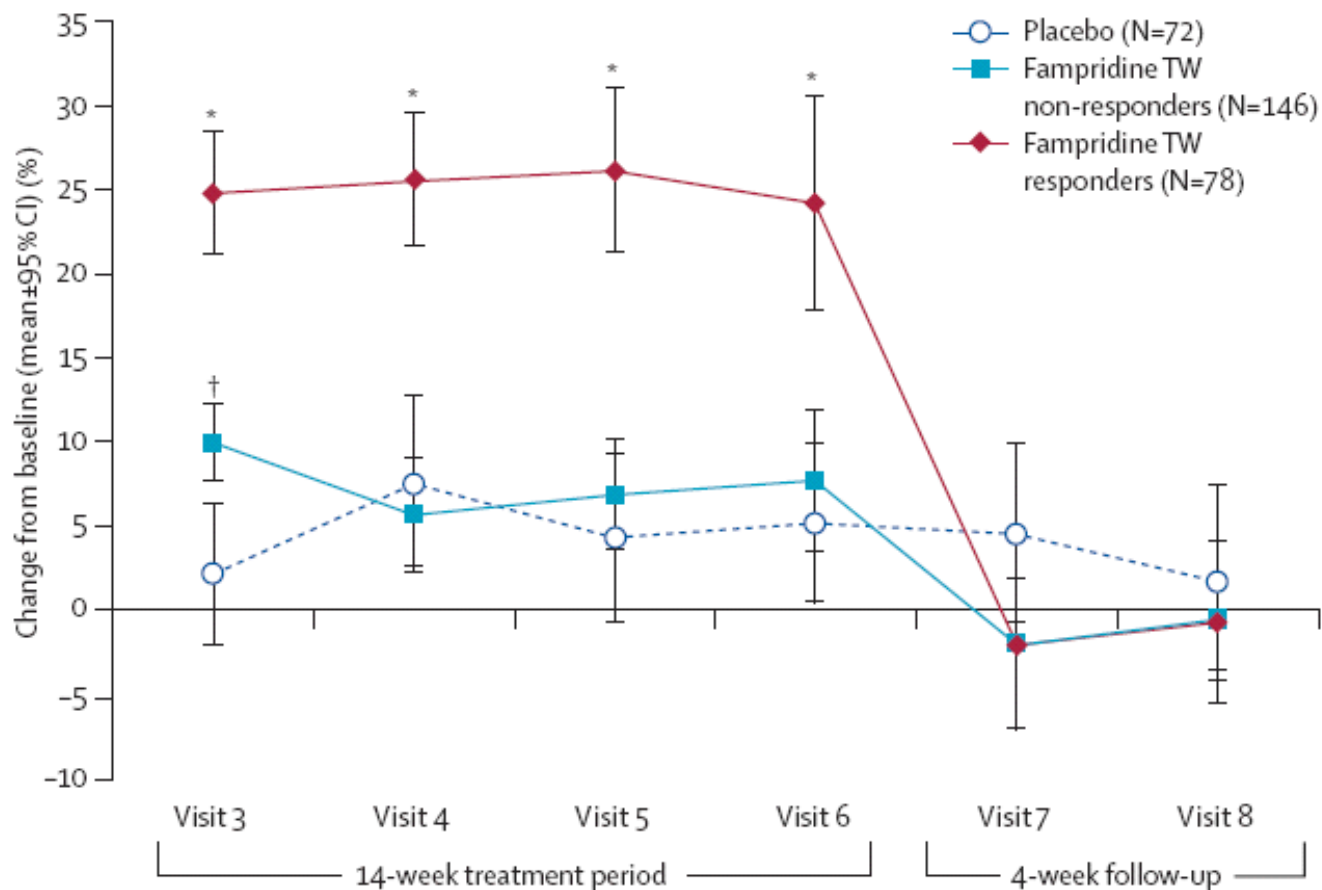


Fampridine (Ampyra®)

- **4-Aminopyridine**
- **Randomized, double-blind study**
 - 301 patients, 2 x 10 mg for 14 weeks
- **Improvement of gait**
 - Responder
 - Fampridine 35 %
 - Placebo 8 %
 - Improvement of gait velocity
 - Fampridine 25,2 %
 - Placebo 4,7 %
- **Approval in USA**

Goodman et al., Lancet 2009

Fampridine (Ampyra®)



Wheelchair training



Fatigue

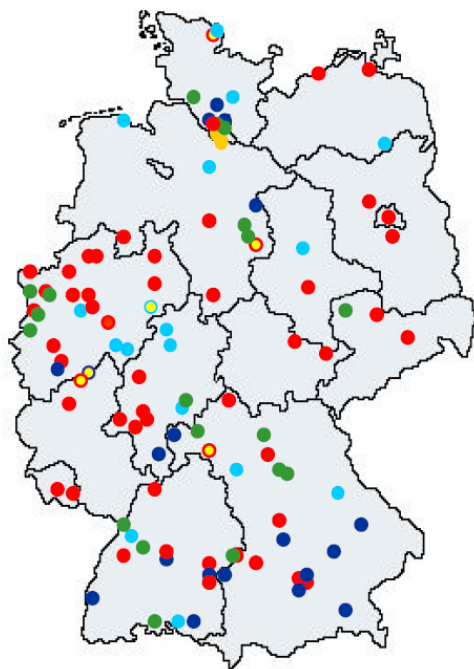
Symptoms of MS

J Neurol (2009) 256:1932–1935
 DOI 10.1007/s00415-009-5257-5

LETTER TO THE EDITORS

Symptomatology of MS: results from the German MS Registry

Kristin Stuke · Peter Flachenecker · Uwe K. Zettl · Wolfgang G. Elias ·
 Matthias Freidel · Judith Haas · Dorothea Pitschnau-Michel ·
 Sebastian Schimrigk · Peter Rieckmann



	n	Häufigkeit	KHD < 2 Jahre	KHD > 15 Jahre
Anzahl	10.465		675	2.914
Spastik	4.917	3.106 (63,2 %)	56 (20,4 %)	1.347 (78,0 %)
Fatigue	4.671	3.024 (64,7 %)	138 (47,8 %)	1.059 (67,5 %)
Schmerzen	4.551	1.775 (39,0 %)	77 (27,6 %)	688 (44,1 %)
Miktionsstörung	4.610	2.800 (60,7 %)	68 (25,8 %)	1.210 (75,2 %)
Defäkationsstörung	4.183	949 (22,7 %)	16 (6,3 %)	462 (31,9 %)
Sexuelle Störung	3.426	775 (22,6 %)	19 (8,1 %)	291 (26,1 %)
Ataxie/Tremor	4.417	2.140 (48,4 %)	59 (22,1 %)	840 (55,5 %)
Kognitive Störung	4.328	1.669 (38,6 %)	53 (19,9 %)	621 (42,0 %)
Depression	4.641	1.762 (38,0 %)	72 (25,7 %)	590 (37,9 %)
Okulomot. Störung	4.468	923 (20,7 %)	46 (16,8 %)	371 (24,9 %)
Dysarthrie/Dysphonie	4.287	671 (15,7 %)	11 (4,2 %)	315 (21,4 %)
Dysphagie	4.284	369 (8,6 %)	4 (1,5 %)	199 (13,5 %)
Epileptische Anfälle	4.315	127 (2,9 %)	6 (2,3 %)	47 (3,2 %)
Sonst. Paroxysmen	4.138	156 (3,8 %)	8 (3,1 %)	50 (3,5 %)

Pharmacological therapy

Amantadine	100-300 mg/d	some effects
4-Aminopyridine	bis 30 mg/d	maybe helpful
Modafinil	200-400 mg/d	divergent results
Acetyl-L-Carnitin	2000 mg/d	maybe helpful
Aspirin	1300 mg/d	maybe helpful

Non-pharmacological therapy

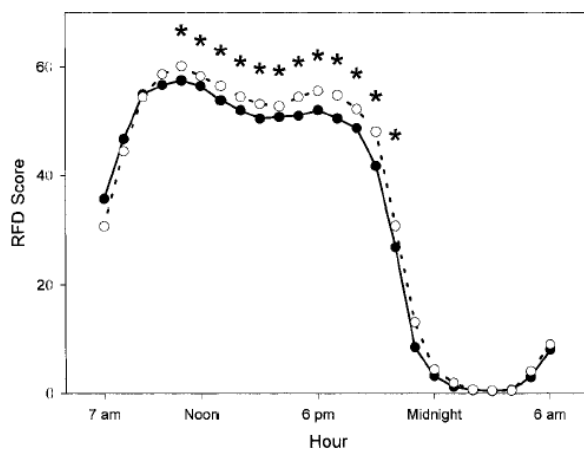
- **Information and counselling**
- **Avoid exhaustion**
 - energie management
 - rest
- **Avoid heat**
 - air condition
 - cool bad or shower
 - cooling devices

Cooling

A randomized controlled study of the acute and chronic effects of cooling therapy for MS

NASA/MS Cooling Study Group*

MFIS:
35.9 vs. 43.6 ($p < 0.0001$)



Cooline



VentilationVest (Entrak)



Arctic Heat

Non-pharmacological therapy

- **Information and counselling**
- **Avoid exhaustion**
 - energie management
 - rest
- **Avoid heat**
 - air condition
 - cool bad or shower
 - cooling devices
- **Endurance training**

Ergometer training in MS

Positive effects on

- **Fatigue**
- **Quality of life measures**
- **Physical functioning**



Rehabilitation

Consensus Paper

IV European-wide Recommendations on Rehabilitation for People affected by Multiple Sclerosis

EMSP - European MS Platform /
R.I.M.S. - Rehabilitation in Multiple Sclerosis
October 2004

Rehabilitation interventions

- **Physiotherapy**
- **Psychology**
- **Rehabilitation in cognitive impairment**
- **Rehabilitation of speech, language and swallowing disorders**
- **Occupational therapy**
- **Vocational rehabilitation**
- **Rehabilitation nursing**
- **Social counselling**

Rehabilitation in MS

After establishing a rapid and clear diagnosis by a neurologist, with special knowledge in Multiple Sclerosis, each Person with Multiple Sclerosis should be referred to a specialist neurological rehabilitation team which should recognise the varying and unique needs and expectations of each person with Multiple Sclerosis.

When, at a later stage, the person with Multiple Sclerosis has established more impairment resulting in both disability and handicap, the person with Multiple Sclerosis should have access to and benefit from a focused symptom and disability management. Recurring barriers to employment, education and transportation should be eliminated, avoiding discrimination on the basis of disability.

Physiotherapy for MS



Bobath-Konzept



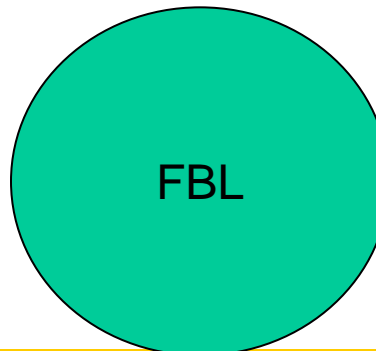
Hippotherapie



PNF

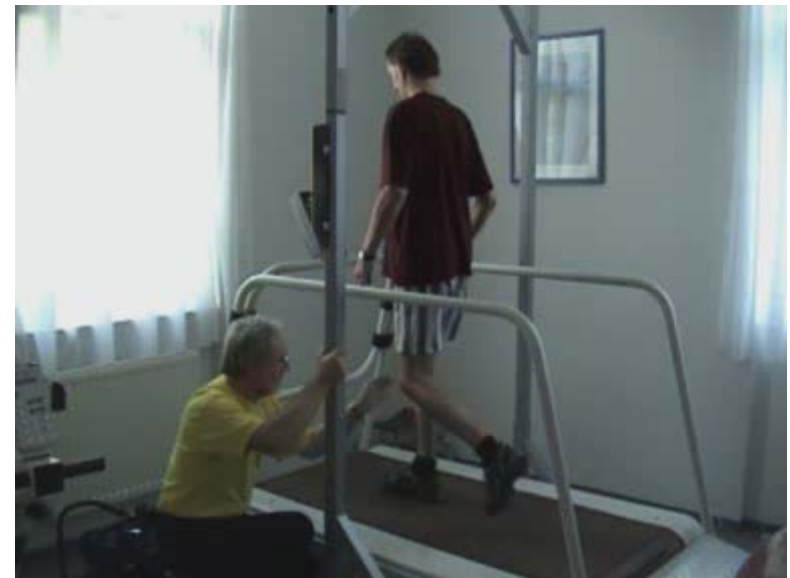
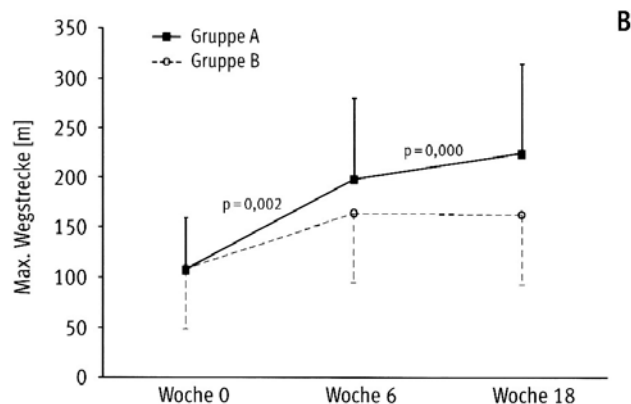
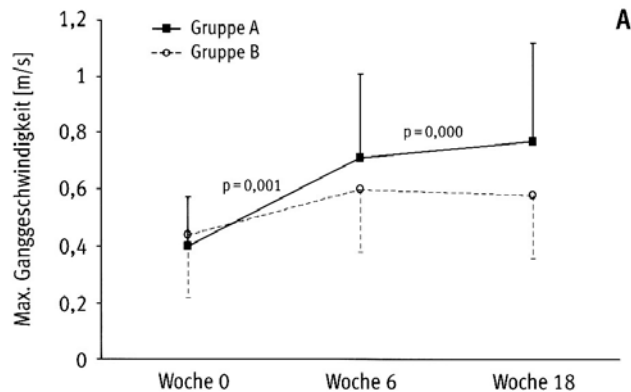


Vojta-Prinzip



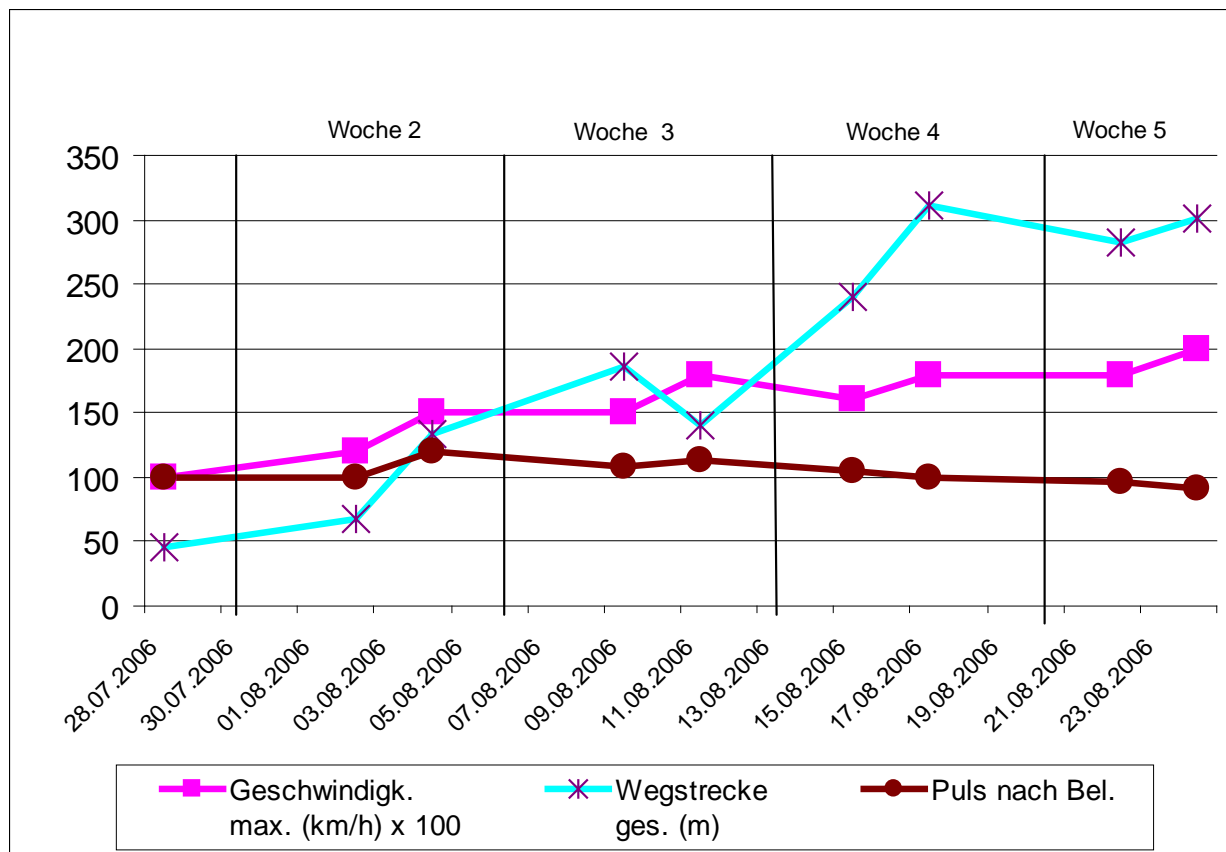
Brunkow-Therapie

Treadmill training

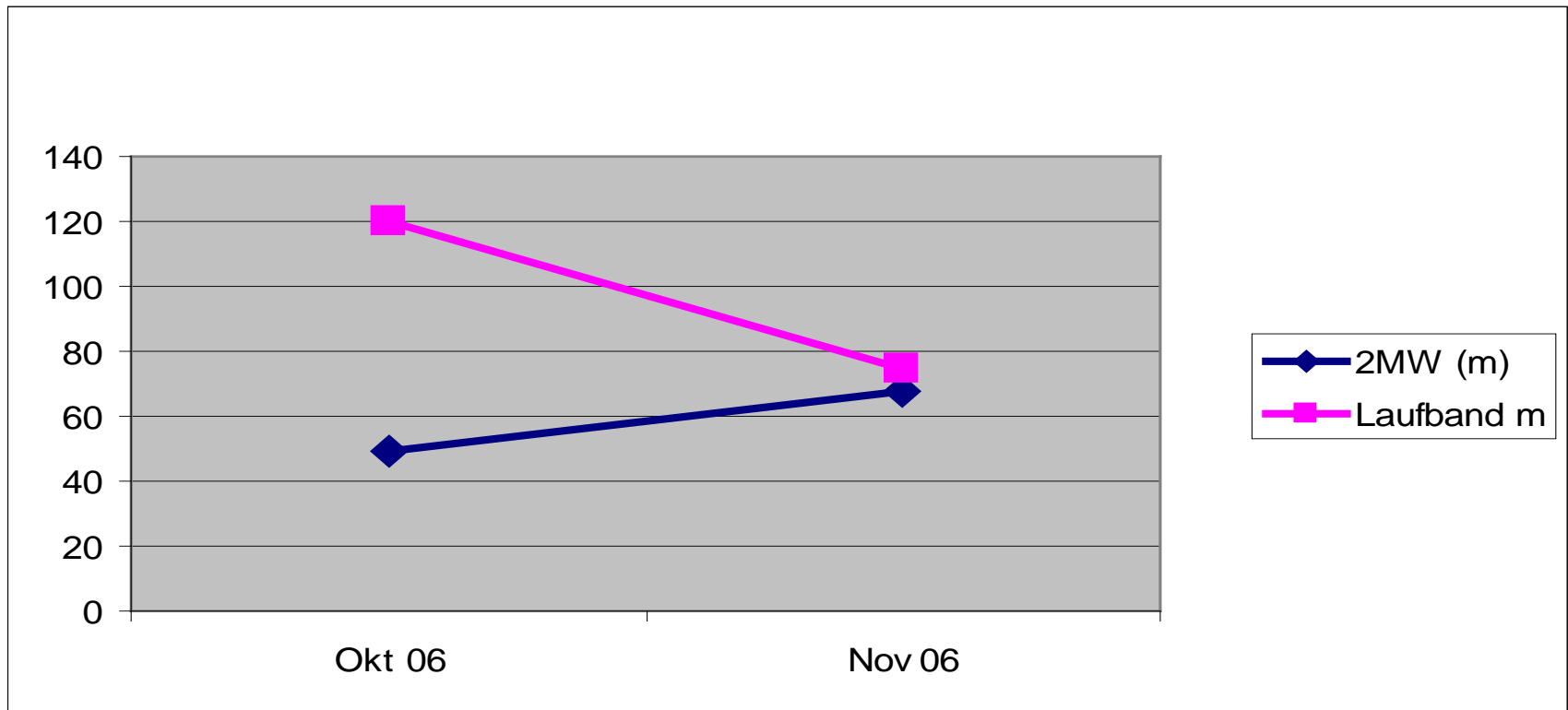


Improvement of gait parameters in patients suffering from stroke

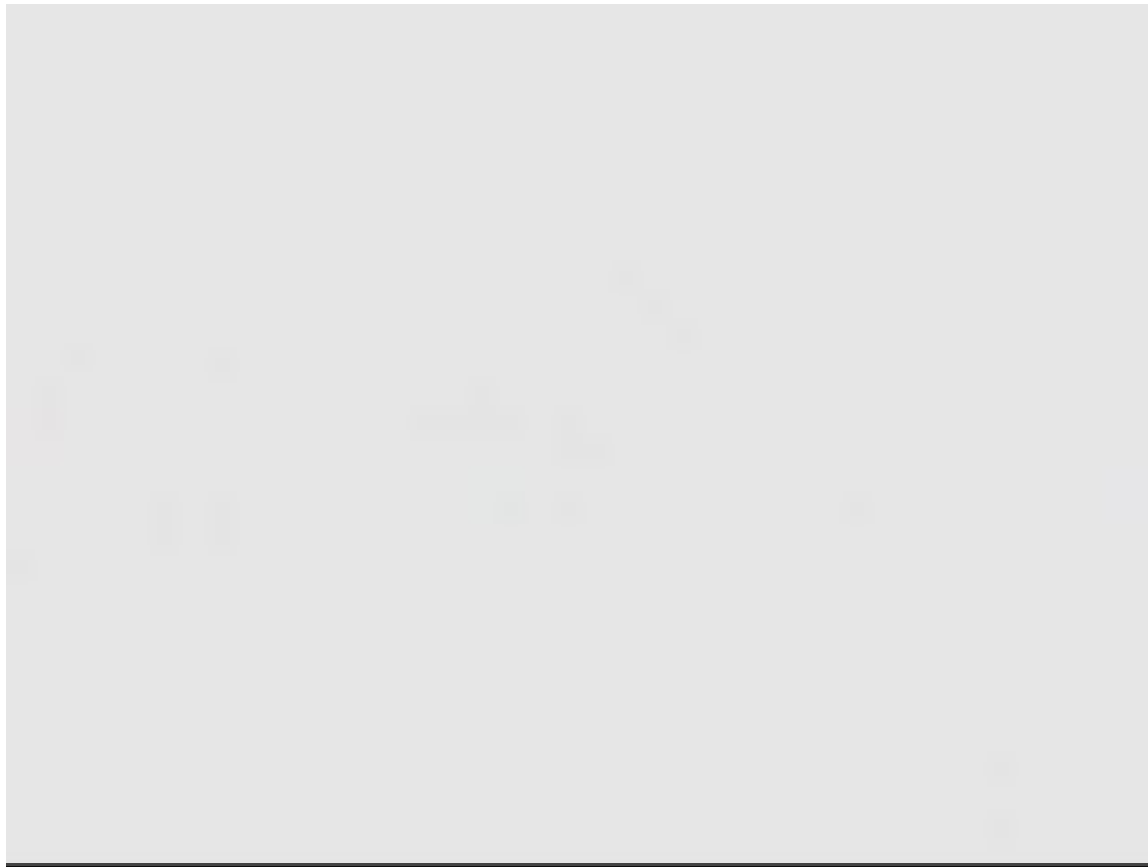
Treadmill training



Treadmill training



Treadmill training



Hippotherapy



Hippotherapy



Before



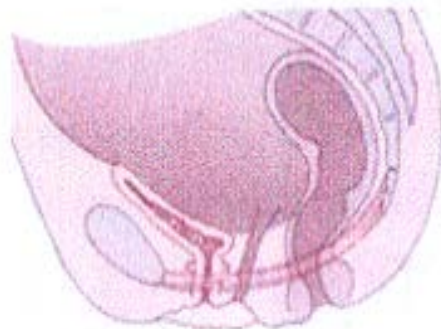
After

Thanks for your attention!

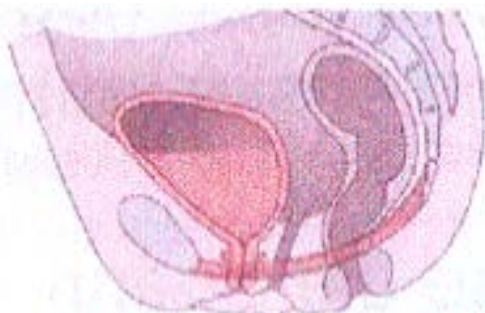


Bladder disturbances

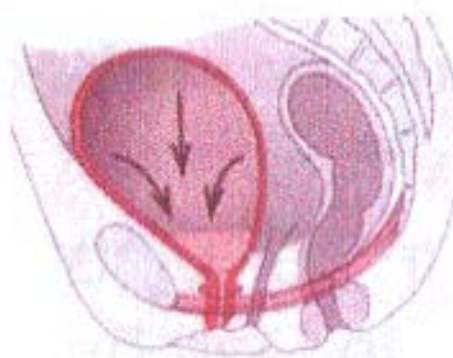
Bladder disturbances



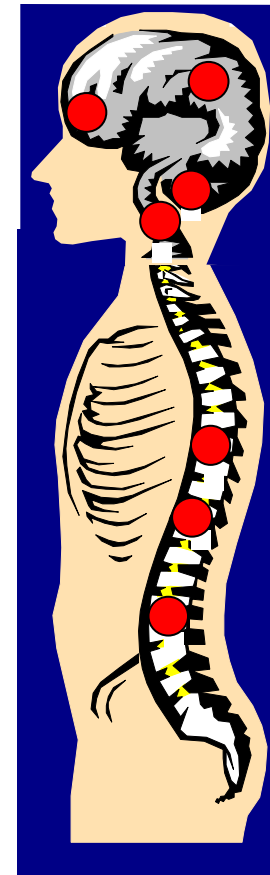
leere Blase



halbe Blasenkapazität,
erster Harndrang



Blasenentleerung



Therapy of bladder disturbances

- **exclude urinary tract infection**
- **micturation diary**
- **regular fluid intake**
- **pelvic floor training**
- **pharmacological therapy**
 - reduction of detrusor hyperactivity: anticholinergics (Spasmex[®], Dridase[®], Detrusitol[®])
 - relaxation of sphincter tone: antispastics, alpha-blocking agents
 - reduction of urine production: desmopressin (Minirin[®])
 - acidification of urine (Methionin) → prophylaxis of urinary infections
 - botulinum toxins
- **katheterization**
 - Intermittierend self catheterization (ISC)
 - suprapubic catheters

Pelvic floor training



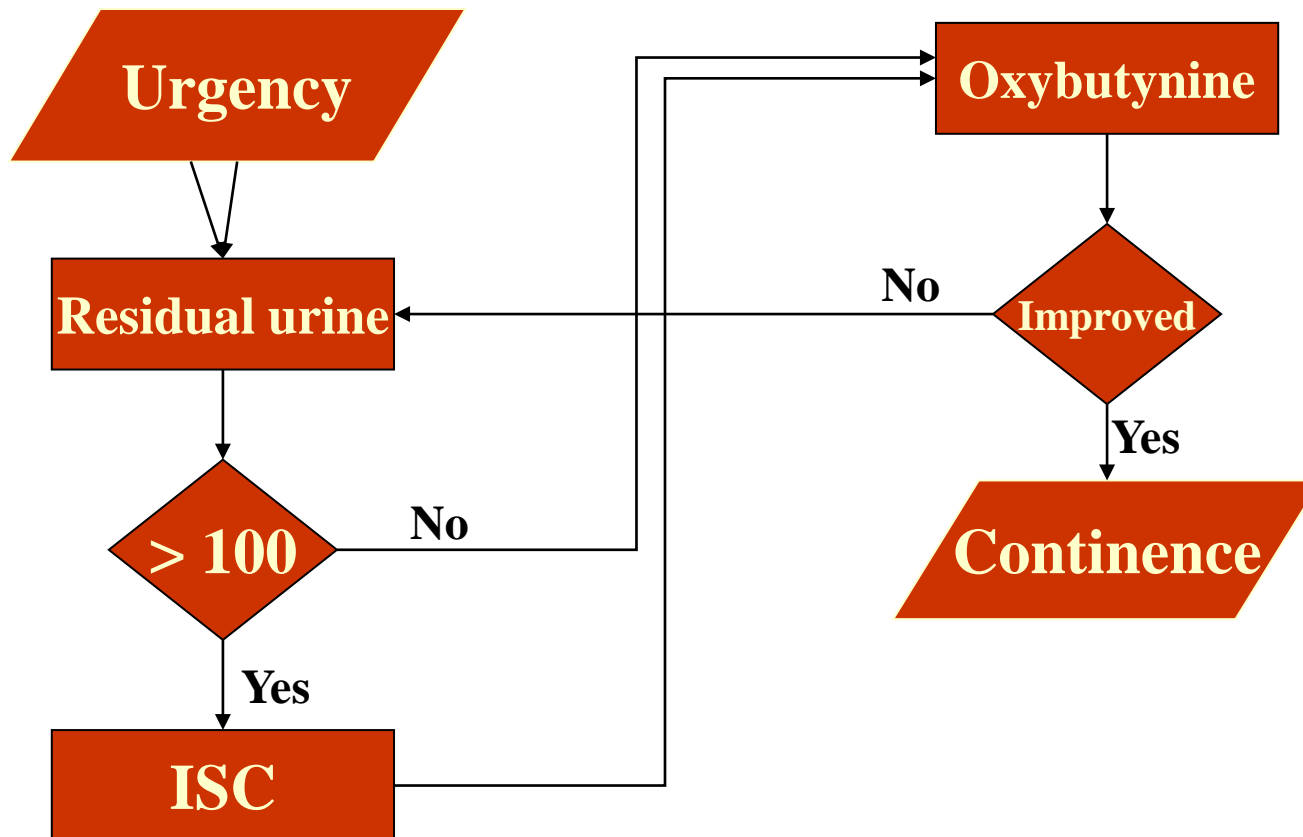
Bladder disturbances - aids



- **Intermittent self catheterization (ISC)**
 - Sterile
 - 2 – 3 times per day
- **Condom urinal**
 - Helpful in men
- **Suprapubic catheter (SPK)**
 - Change every 4 – 6 weeks
- **Transurethral catheter**
 - Should be avoided



Therapy of bladder disturbances



Fowler C., J Neurol Neurosurg Psych 60 (1996): 6-13