Dear Patient,

Patients with ataxia suffer from disturbance of balance and coordination. This leads to exceedingly uncontrolled, swaying movements. Patients tend to avoid these uncontrolled movements and, in particular, stop to perform those movements that demand high coordinative efforts. Thus, their movement repertoire is increasingly restricted to movements with only poor variation. Balance reactions are missing during gait and the risk of falling increases. As a consequence, patients lose coordination skills, reaction ability and gait safety to a larger extend than could by explained by the severity of the disease per se.

Our physical therapy approach aims to improve static and dynamic balance control and coordination skills and to reduce fear and stiffness.

The exercises differ in difficulty and risk. Some exercises are performed lying on the floor so that the patients do not run the risk of falling. Other exercises like standing on one leg or climbing stairs are more risky. The physical therapist should assist you in those exercises that you cannot perform yourself without risking injuries or falls. All exercises should be done without holding anywhere. Please feel free to perform the safe exercises on a regular basis at home, but omit those exercises which you cannot perform without aid.

As a key element of the treatment strategy, you should stop making yourself stiff. If you start to sway more after the first exercises, an intermediate goal has been achieved. It will allow you to perform more accurate movements and, once you lose balance, to react more flexibly. After some training you gain more control over your movements. This programme strengthens you in repeating the daily live oriented coordination exercises. This means that you do not need additional strengthening exercises. Move in a smooth and fluid manner as it is possible. Adopt the new learned skills in daily life.

For more information see:


Coordinative Physiotherapy for Patients with Ataxia

Exercises - Coordinative Physiotherapy

On the Ground

- Free Spinal Flexibility

Extension in Lying from Prone Position

- lie down on your stomach
- hands on the ground, straight below the shoulders
- straighten your elbows, so the upper body moves up
- pelvis stays on the ground
- relax back and gluteal muscles, so the spine and hip joints are extended
- lie down, relax
- repeat 5 to 10 times

Reading Wedge: The reading wedge is an alternative to sitting. You can improve the extension of hip and spine while reading.
Rotation in Lying on your Back

- lie down on your back
- bend your knees and put your feet on the mat
- spread your arms
- tilt both knees to one side
- simultaneously turn your head to the other side
- move knees back up
- same procedure to the other side
- repeat 10 times to each side

Flexion in Lying on your Back

- lie down on your back
- bend your knees
- move your knees towards your stomach with the aid of your hands
- decline your knees as far as your hands keep contact to your knees
- repeat 10 times

- Free Shoulder Joint Flexibility

Arm Movements Lying on the Back

- lie down on your back
- lift your arms and lay them on the mat towards the mats top end
- push your hands to the top end, straightening your elbows
- move your arm towards your feet, bend your elbows, put them next to your body
- repeat 10 times
- relax
**Quadruped Position**

- push up from prone position to quadruped position
- the hands are straight below the shoulder joints
- the knees are straight below the hip joints
- extend your spine. In doing so, you should feel a muscle tone in your abdominal, back and neck muscles.
- lift your right arm and your left leg to a horizontal position, keeping your upper body stable
- put down hand and knee
- repeat with left arm and right leg
- repeat 10 times

**Increase of Difficulty: Additional Spinal Movement**

- quadruped position
- bring your left elbow and right knee together below your body
- straighten your left arm and right leg and elevate them far up
- repeat 5 times balancing on the left leg and the right arm
- quadruped position
- repeat with the other leg and arm
Complex Motion Sequence “Morning Prayer“

step 1
- “package position“, knee, hip, shoulder and elbow joints and spine are flexed
- put one hand on the other

step 2
- straighten your arms, hip and knee joints and spine simultaneously
- move up into kneeling position

step 3
- straighten all joints
- look at your hands
- move back into „package position“
- repeat 5 times

Kneeling Position 2
- kneeling position
- move one leg forward without touching the ground with your toes
- move back into kneeling position
- repeat with the other leg
- repeat 5 times each

variation
- kneeling position
- move one leg to the side and tap on the ground with your toes
- go back into kneeling position
- repeat with the other leg
- repeat 5 times each
While Sitting

- **Balance**

**Bending and Straightening of the Spine**
- bend and straighten your spine alternately
- relax your arms

Increase of Difficulty:
- 1: bend forward, so you can touch your toes
- sit back up
- 2: bend forward, so you can touch the floor
- lift your buttocks
- stand up

- **Shifting your weight to the side**
- sit upright
- shift your weight to the right
- sit back up
- repeat 5 times
- shift your weight the left
- sit back up
- repeat 5 times
- 5 more times to the right

Increase of Difficulty: 1. Put one foot on the bed and back on the ground
   2. Put both feet on the bed over the side

**Standing up and Sitting down**
- bend your spine a bit
- shift your weight onto the feet
- move in an upright position
- keep the back and knees slightly bended
- sit down controlled
- repeat 10 times
- **Training of Hand-Arm Coordination**

**Exercises with increasing difficulty**

- piling building blocks
- piling little toy bricks
- turn around playing cards
- collecting items in a small jar (marbles, paper clips)
- write half an A4 page every day

**Throwing and Catching a Ball**

- throw the ball up in the air with your right hand and catch it with your right hand
- same with your left hand
- throw as far up as your eye height
- catch at the height of your waist
- throw a ball from the right hand to the left and back
- throw and catch balls of different shapes
- increase of difficulty: practice while standing; practice e.g. standing in front of a couch for safety;
While Standing

- **Standing Up from the Ground Using „Bear Stand“**
  
  - stand – bend knees and spine
  - touch the floor
  - quadruped position
  - stand on your feet with your hands still on the ground
  - straighten your knees; the pressure remains mostly on the forefoot
  - lift your hands off the ground and stand up, orientate your weight forwards; keep your knees slightly bent

**Standing Up from the Ground**

**Kneeling Position – Kneeling Position 2 – Stand**

- kneeling position
- move one leg forward: kneeling position 2
- stand up shifting your weight forward
- move the hind leg next to the other one
Knee-Bends

- stand upright
- bend your knees
- the upper body remains upright
- lift your heels off the ground
- bend your knees so far that you can keep your upper body upright
- stand up
- repeat 5 times

Bob at the Knees while Swinging Your Arms

- stand upright with your feet hip-width apart
- bob at the knees
- swing your arms back and forth alternately
- adapt rhythm of arm movement to leg movement
- continue for 30 seconds

Standing on One Leg

- stand upright
- for matters of safety you should perform this exercise standing in a corner
- shift your weight on one leg
- lift the other leg forwards
- stand freely, dont hold on to anything
- remain in this position for a moment
- put down your foot
- repeat with the other leg
- repeat 5 times each leg
Dynamic Balance Training / Safety Steps

Side Steps
- stand upright with your feet hip-width apart
- take a big step to the side
- go back to the original position
- repeat 20 times with each leg

Steps forwards
- stand upright with your feet hip-width apart
- take a big step forwards
- go back to the original position
- repeat 20 times with each leg

Steps backwards
- stand upright with your feet hip-width apart
- take a big step backwards
- go back to the original position
- repeat 20 times with each leg

Cross-Step front
- stand upright with your feet hip-width apart
- cross your legs in the front
- go back to the original position
- repeat 20 times with each leg

Cross-step back
- stand upright with your feet hip-width apart
- cross your legs in the back
- go back to the original position
- repeat 20 times with each leg

variation
- alternate between front and back
Coordinative Physiotherapy for Patients with Ataxia

Safety Steps to Prevent Falling (with Therapist)

- stand upright
- your therapist pushes you, so you lose balance
- at first in one pre-decided direction
- back to original position
- repeat 10 times in each direction

**Increase of Difficulty**

- the therapist pushes you in a random direction
- repeat 5 times
Coordinative Physiotherapy for Patients with Ataxia

Walking
Walk every day about 30 Minutes minimum.

Start and Stop
• stay flexible
• slightly bend your knees
• orientate forwards
• relax your arms

Changing the Direction
• Lift your feet while changing the direction
• take several steps, always forwards
• stay flexible, bend your knees slightly

Walking on Different Surfaces
• walk on uneven ground
• block streets, forest floor, grass
• don't go alone (at first), but do not hold on to anything
• walk uphill and downhill on tarmac
• increase the difficulty by combining angular and uneven ground

Climbing Stairs
• go up and down the stairs
• use the handrail at first
• walk freely, close to the handrail