How does the 4D analysis function?

The patient stands in front of a recording device, consisting of a video camera and a projector. Parallel measurement lines are projected onto the patient’s back, and the video camera records the three-dimensional patterns. Software evaluates the measured data and determines the posture of the entire back, spine, and the position of the pelvis.

Precise postural or deformity corrections can be simulated by a height-adjustable platform (e.g., leg length differences, spinal column deformities, etc.). During follow-up evaluations, changes from previous analyses are measured and displayed on the computer.

It is now possible, after extensive scientific studies, to measure the three-dimensional shape and position of the spine through an optical measuring system without any exposure to radiation. The results can help guide treatment plans and usually lead to better recovery.

Through the integrated treadmill with dynamic foot pressure sensors and video analysis, a gait analysis is possible during the same motion analysis procedure.

Information

More information on the 4D motion analysis system, the measurement process, and contact details for appointments can be found on our website www.traumatologie.usz.ch

Appointments and information
Tel. +41 44 255 27 55

Address for written referrals
University Hospital Zurich
att. to Professor Hans-Christoph Pape, MD, FACS
Department of Traumatology
Outpatient Appointments, Motion analysis clinic
Rämistrasse 100
8091 Zurich
Switzerland

E-mail exclusively for referrals by your doctor:
Consultation and motion analysis
AnmeldungTRA@usz.ch

Private insurance consultation and clinic director motion analysis
AnmeldungTRAPRIVAT@usz.ch

Follow University Hospital Zurich

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Dear patients

There is hardly anything more important to human kind than being able to move around freely and without restrictions. We are rarely aware that when walking, a multitude of muscles, joints and neural pathways work together in a coordinated manner. Even the slightest malfunction within this complex system can lead to significant impairment in mobility. However, the cause of the problem is not always where pain is felt.

For example, back pain and knee problems can be caused by incorrect loading and misalignment of the feet because they cause changes in the overall stance of the body. If the goal is to make reliable diagnoses, then a holistic view of the musculoskeletal system is essential.

Innovative technology can be of valuable assistance: In our clinic, we offer examinations using the 4D trauma motion lab as a whole-body motion analysis. With this system, motion of the entire body is analysed in one complete measurement of the spine, the pelvis, and legs straight down to the feet.

Hans-Christoph Pape, Prof. Dr. med., FACS
Executive Director of the Department of Traumatology

Welcome

The innovative measurement system of 4D trauma motion lab is used to measure the entire spine, pelvis, leg and foot.

Uses of the 4D trauma motion lab include
- Assessment after surgical procedures of the musculoskeletal system
- Pain in the joints (e.g. hips or knees) and back
- Foot misalignment or foot-related malpositions
- Back and spine problems
- Osteoporosis and osteoporosis-related back pain
- Early detection of poor posture and functional problems
- Measurement of pelvic malalignment and leg length differences
- Assessment after therapeutic procedures
- Assessment of orthotics, prostheses, and shoe insoles
- Motion analysis in competitive and recreational athletes
- Determination of deviations in leg axis and/or leg length, as well as joint instability
- Documentation for independent medical exams

Offer

Through whole body motion analysis, postural or functional problems can be corrected faster.

Therapeutic advantages in orthopedic trauma

Whole body motion analysis represents an important new treatment modality for musculoskeletal problems. Deformities can now be objectively measured.

Treatment and rehabilitation plans after injuries can be individually tailored and treatment success can be monitored.

Results of the motion analysis are evaluated by experienced trauma and orthopedic surgeons, are discussed together with you, and further treatment goals on the road to successful recovery are planned together.