Noldus

CatWalk XT vs treadmills

Why free walking is the superior method

FORCED MOVEMENT & CHANGED BEHAVIOR

When performing gait analysis, it is important that your animals behave as naturalistic as possible. *Natural gait*, as it is called, can be altered due to various reasons such as neurological disorders, musculoskeletal issues, or pain. Forced gait, on the other hand, might be a result of an individual consciously or unconsciously trying to compensate for discomfort, injury, or disability. The Noldus Catwalk™ XT is a system that measures free walking gait, ensuring proper phenotyping.

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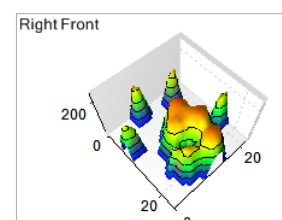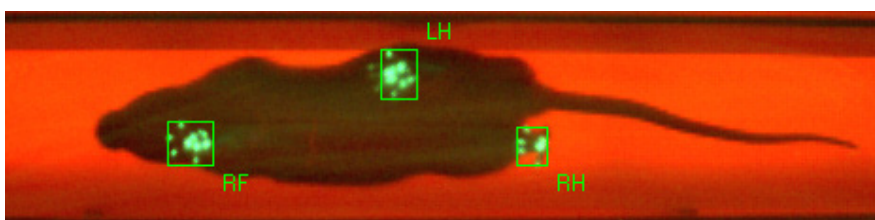

A treadmill system however, such as the DigiGait, creates an environment that induces forced gait. When implementing forced gait, the incentive to walk goes beyond the natural (or unnatural in the case of disorders) gait, which in turn alters the phenotype.
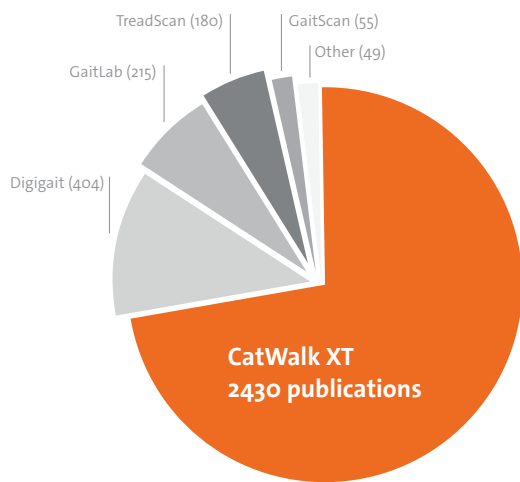
Furthermore, behaviors like back arching and ducking will influence the results of most runs on a treadmill. As a researcher you would need to manually select video segments without these behaviors, which also creates experimenter bias. Being on a treadmill can also cause

stress, exacerbated by the bright light environment that is needed for DigiGait to function. This could result in an impaired behavioral reaction to the parameters set by your research.

MISCONCEPTIONS REGARDING THE CATWALK XT METHOD

- *On a treadmill the animal walks at a constant speed, while on a CatWalk XT they do not* - Despite what is said by treadmill providers, walking on a treadmill does not guarantee a constant walking speed. Animals speed up or slow down to adapt to the speed of the treadmill. Furthermore, severely impaired rodents cannot be tested on a treadmill and therefore create artificial measurements. CatWalk XT allows you to automatically detect runs within a similar speed range, which allow you to compare runs of similar speeds.

- *Before using a CatWalk XT system, I need to train my animals, which makes my experiment take longer* - Training is an important part of all gait analysis systems; CatWalk XT is no exception. Habituation and novelty effects are important influencers of experiment outcome that can be mitigated by training i.e. getting to know the equipment. Thus, although training increases experiment length, it foremost increases data quality and is part of a proper gait analysis experiment.

TreadScan (180)
GaitScan (55)
Other (49)
GaitLab (215)
Digigait (404)

**CatWalk XT
2430 publications**

of paw contact on the walkway, avoiding laborious and difficult corrections. This is also why CatWalk XT is the top cited gait analysis system.

NOLDUS SERVICE & SUPPORT

Not only is CatWalk XT the better system for gait analysis, Noldus IT provides a variety of services. Our international team of experts are always available to answer your questions, from assistance with your solution to consultancy on behavioral research, Noldus IT can offer it all. We also provide optional extra support via NoldusCare. Having NoldusCare gives you free access to software updates, extended hardware warranty, and expedited technical support.

Lastly, we at Noldus IT are busy developing new features and improvement for CatWalk XT. This will ensure that CatWalk XT remains at the top of its class for years to come.

**More information
on CatWalk XT**

BETTER ANALYSIS, BETTER DATA

CatWalk XT excels in data insight and analysis, offering unparalleled transparency and ease of use. As a black box system, DigiGait relies on blind trust by the user, whereas CatWalk XT provides access to the raw data. CatWalk XT provides constant graphical feedback for correct classification, and a comprehensive insight into gait. DigiGait's pawprint detection is assumption-based and thus prone to errors. Additionally, the CatWalk XT does not require painting paws, which could lead to unreliable registration