



## Screening, Running Analysis and hard work

### **- All the way to the finish line**

During the 2016 season one of Qualisys partners, Elitrehab sportphysiopractice in Gothenburg, wanted to try out our Running Analysis in a new concept together with functional screening and individual programming to prevent injuries and enhance performance in endurance Athletes.

Martin, Susanna, Jonas and Jonas accepted the challenge of becoming Team Elitrehab and do the screening, Running Analysis and the hard work. Jonas and Jonas on their way to Borås Swimrun. Susanna and Martin going for Ö-loppet swimrun. All of them aiming for the Ironman at the end off the season.

This is their story.



#### CUSTOMER PROFILE

- Physiotherapists specialized in sports medicine, orthopedics and sports specific training
- Sport medicine and sport specific training

#### WORK METHODS:

- Sportspecific screening and functional analysis
- Treatment with; acupuncture, sports-taping, fascia and muscle mobilization
- Training program for rehabilitation, injury prevention and performance enhancement

## Each Olympic athlete is supported by a whole staff.

The summer with great Olympic achievements is over like the season for our athletes competing in swimrun, triathlon and long distance running. We know that behind every victory and every great accomplishment there is a lot of hard work and preparation.

However, the difference at Olympic level is that, compared to any other athletes, each Olympic athlete is supported by a whole staff of coaches, physiotherapists, massage therapists, sports psychologists, materials managers, dieticians and more who provide support, schedules and keep track of the training and planning on behalf of the athlete in question.

There are elite athletes in individual sports who also train hard for their competitions, alone and at the mercy of their own judgement as to the best choices for reaching the top and getting the most out of their training. You read blogs, look at apps with training programmes and often do an extra training session to be on the safe side in order to get where you want to be.

## Many of the endurance athletes are managing the training on their own.

In football, in which many of us were previously active, tests are conducted after the end of the season to see how the players are doing in terms of strength, flexibility, motor control, balance and lots more. This is routine. The players are then given a programme based on the results, which they will use during pre-season training as they prepare for the next season. But this is far from routine among individual endurance athletes, unless they are competing at an elite level. Many do their own thing and might not even belong to a club. And even if you do, the culture of screening and help with supplementary strength/core/flexibility programmes is far from established.

If you are lucky there might be some spontaneous sit-ups and push-ups after finishing a run or planking and flexibility training for the hips when coming off the bike.

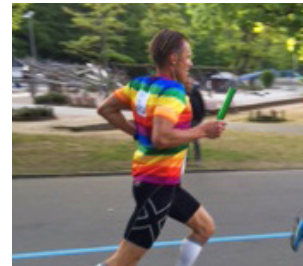
This is what led Elitrehab to consider and conclude that we wanted to do more than create training programmes for those who were already injured or had developed stress injuries. We therefore developed function testing and screening batteries aimed specifically at the sports we are passionate about and started collaborating with technical coaches to really determine that it was enough for what you want to do, all the way to the finish line.

## Step 1 – Screening

The team started by completing functional screening at Elitrehab to evaluate the condition of the body compared to the demands that would be placed on them during the season. We tested strength, flexibility, balance, agility, motor control and several other key functions. Everyone found out right away how they were doing and if there was anything that needed to be improved to reduce the risk of injury and enhance performance.



*Susanna is training*



*Martin at the race*



*Compare Martin's hip position in the two images. He has clearly followed his training programme.*

## Does it work?



**Jonas H**

“I firmly believe that I could make a great difference when it comes to injury prevention thanks to all your help. In my case it is just about keeping on practicing. You have certainly been a great help in providing positive feedback and exercises I was previously unfamiliar with.”



**Susanna M**

“Getting help with functional screening and running analysis has been extremely valuable to my training. I have a very complex injury history and being able to pinpoint what I needed to focus on in my prehab training and developing a strength programme based on the tests has laid the foundations for my body being able to cope.”



**Jonas S**

“I could see on paper that I needed to improve my core strength, which I had neglected for several years. It will take time and cannot be forced, but I am working on improving what was shown by the screening.”

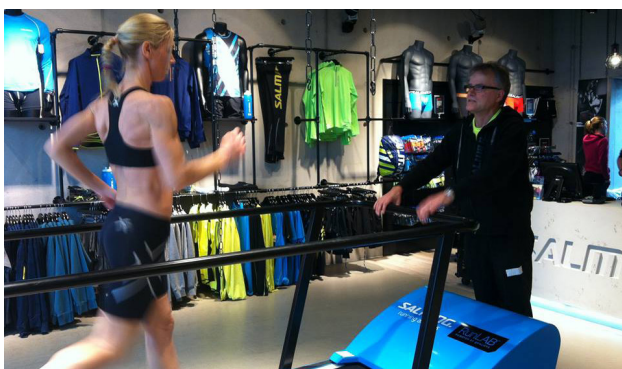


**Martin Y**

“For me, the screening and the support from Elitrehab has been very valuable for spotting my weaknesses in my body. I have gained a better understanding for what I need to strengthen in order to stay injury free. I feel more controlled in my body and also more secure in my training.”

## Step 2 – Running analysis

Salming RunLab, with the Qualisys Running Analysis System, was the project partner and provided support in the form of running analyses and training equipment. Not many people have had the chance to view their stride in 3D. Everything is covered, from how the foot lands upon impact to how the pelvis rotates when pushing off.



*Running Coach Peter Fröberg provided the participants with feedback on their running technique, as well as tips along the way. Many things were fine from the start, but there were a few things to fine tune. Just as the screening showed, several of the participants needed to work on their hip posture from sitting to a more upright, straight position.*



## Step 3 – Training programme:

Based on what we found in the screening and running analysis, all participants were given individual training programmes and all of them had the chance to work on improving body balance. Demanding weight training was varied with motor control exercises that were challenging in terms of concentration. Deadlifts and lunges are excellent exercises for training hip strength and activating the gluteus maximus muscle in the fully extended position. Strength here also reduces the risk of overloading the Hamstring and the lower back getting a strain or pain. Of course, it may often feel hard and demotivating to go to the gym and complete your programme when you would rather go for a run in the forest, but if you know the purpose of the exercises and the benefits they will have, it will be much easier to motivate yourself.



*Susanna and Martin in joint first place at Ö-loppet. A competition that goes down in history with two people who were extra strong giving everything all the way to the finish line. Fantastic athletes!*

## Step 4 – Competition “All the way to the finish line”

Getting the timing right and being in the best possible shape when it counts is not always easy. When you are training on a high level, you always want to do more to be at your best and there is a risk of overdoing it and getting worn out or even injured. But if you know that you have done your prehab, completed your basic training and build-up phase and there is someone who can provide feedback about how the body is managing, it becomes easier to be confident about capacity and being able to focus on the right things.



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## Running Analysis System

<b>3D Cameras</b>	Miquis M3 mocap cameras @ 300 frames per second
<b>Computer</b>	Laptop or desktop with big screen
<b>Accessories</b>	Passive markers, cables, mounting devices, power supplies etc.
<b>Software</b>	Qualisys Track Manager, Qualisys Biomechanical Engine, Running PAF
<b>Web</b>	Web based report, web based booking system
<b>Treadmill</b>	Qualisys branded treadmill, speed up to 25km/h
<b>Support and service</b>	Full agreement during 5 years

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