



REDISCOVER YOUR STRENGTH

with intelligent solutions
for sports performance,
rehabilitation and research

30 YEARS
12 000 INSTALLATIONS
6 CONTINENTS



DEAR FRIENDS OF SPORTS AND EXERCISE SCIENCE

At best scientific progress and technology goes hand in hand. Nowhere is this more apparent than in the sports and medical fields. Powerful computer processes, visualize the biological processes, sophisticated testing equipment allow for accurate testing in field conditions and even exercise machines turn intelligent. **At best technology provides us the tools to investigate deeper, motivate patients, rehabilitate faster, simplify routine tasks and speed up the time to publish.**

AN INTELLIGENT SYSTEM FOR SPORTS AND REHABILITATION

HUR was founded at the University of Technology in Helsinki in 1989 and today the computerized

exercise and testing equipment are being used by universities, research facilities, sport teams and clinics/gyms all over the world.

As a sports professional you will get innovative, smart and motivating exercise and rehabilitation solutions, and as a researcher you will get full control and documentation automatically and you know exactly what a person has been doing any given day. The system automatically increases the loads as the person progress and takes away many of the mundane tasks of supervision and reporting.

Join us on our journey for Lifelong Strength!

*Mats Manderbacka
HUR, Chairman of the Board*

A motivating and smart solution helps gain and regain strength

Intelligent exercise in sports performance requires sophisticated computerized equipment and software - to efficiently achieve desired results and to reduce mundane tasks from the process. In addition, special equipment is required to be able to tackle various kind of rehabilitation needs in the sports field. Sport injuries can in the worst case devastate an athlete's whole career. The recovery needs to start as soon as possible and there need to be the right equipment, tools and processes at hand.

The HUR intelligent solution - consisting of HUR strength training machines and the HUR SmartTouch exercise system - for sports performance, rehabilitation and research, is designed to provide results efficiently and safely - and to meet a large variety of exercise and rehabilitation needs with one solution.

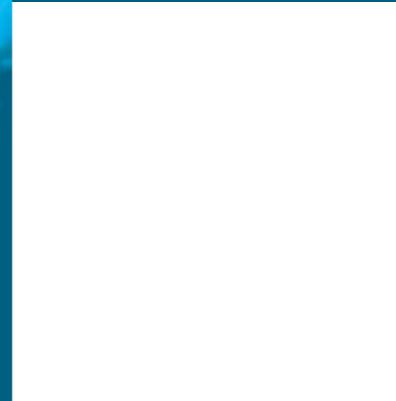
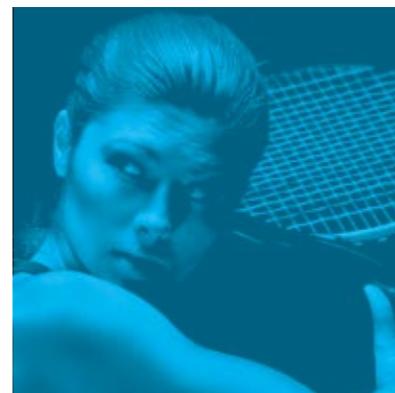
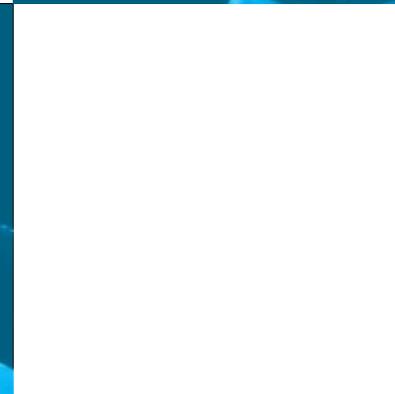
The system includes scientific strength training and rehabilitation equipment as well as concepts, physical performance

testing equipment, compatible cardio products and solutions for versatile functional training. **One evidence-based exercise ecosystem, one centralized automated reporting, one user profile** - complete with all training and testing data to follow the progress and status of the athlete.

Thanks to air pressure resistance and the Natural Transmission™ technique, the training is smooth and the resistance easily adjustable. This is a vital feature when training is delicate, as in

injury recovery, when resistance needs to be increased gradually and with small increments.

The air-pressure controlled resistance is gentle on joints so recovery is less painful compared to strength training on weight-stacking machines. **The unique system also allows for resistance speed training**, and all HUR machines work muscles in both concentric and eccentric phases.



THE SMART CHOICE FOR SPORTS PERFORMANCE, REHABILITATION AND SCIENCE



EASY TO USE AND MORE INDEPENDENT ACTIVITIES WITH COMPUTERIZED EXERCISE - HUR SMARTTOUCH

HUR machines are computerized and come with touch screens. The machines automatically adjust seats and lever arms, sets, repetitions, resistance and heart rate limits thanks to individual training programs. **The user shows an ID to the machine (card, wrist band etc.) and the machine knows immediately what to do.** It counts repetitions and lets the user know when the exercise is done. All exercise information is stored for automatic analysis and follow-up. **The computerized system makes the work of the physiotherapist and sport trainers streamlined and reduces mundane tasks.**



A COMPLETE SOLUTION FOR TRAINING AND TESTING

HUR offers a wide range of strength training devices for exercise and rehabilitation, a smart exercise system with software for automated reporting and follow-up - HUR SmartTouch, compatible cardio products and versatile testing products for assessing balance, maximum strength and jumps (more about the HUR SmartTouch system on pages 10 and 11).



MAXIMUM PERFORMANCE

Thanks to the **Heavy Duty** feature you can train with maximum training resistance and gain absolute max performance out of your body.

Explosive strength training, maximum performance, versatile testing and possibility for more independent training with HUR solutions.



HIGH-SPEED TRAINING

HUR equipment with air pressure allows high-speed exercise with low impact on joints - all thanks to the unique HUR Natural Transmission™ technique. **Perform smooth high-speed training with pneumatic resistance in comfortable machines, designed for maximum performance, where the resistance curve stays optimal in both slow and fast movements.** Weight stack machines does not offer this possibility because of problems with inertia and the changing resistance curve in fast movements.



MEDICAL CERTIFICATED

HUR equipment is developed on a university level and HUR Quality Management System is certified with ISO 13485:2016 and ISO 9001:2015 standards.



CLOSE TO ZERO STARTING LOAD

If you can move one arm or one leg you can exercise with a HUR machine. The starting resistance is close to zero.





INCREASE RESISTANCE WITH AS LITTLE AS 100G/ 1/4 LBS

HUR machines are suitable for most strength levels and recognize all levels of progress. You can also set up the machine to increase resistance automatically as you proceed. The computerized system displays all progress and keeps the user motivated and focused on the goal. **This feature allows athletes to set a specific target – vital when you want to know a person’s max limits, and very useful in injury recovery.**



SAFE - LOW IMPACT

HUR equipment with air pressure makes exercise low impact on joints, thereby preventing stiffness and pain. The equipment is comfortable with back and neck support, and dual core cushions. With the range limiters you can even restrict the range of motion – to further increase safety.



SMALL FOOTPRINT

Space is no issue. Many of HUR machines are dual function, they require little space and are also very quiet which offers the possibility to place them almost anywhere, for example in a coffee room or in a hall.

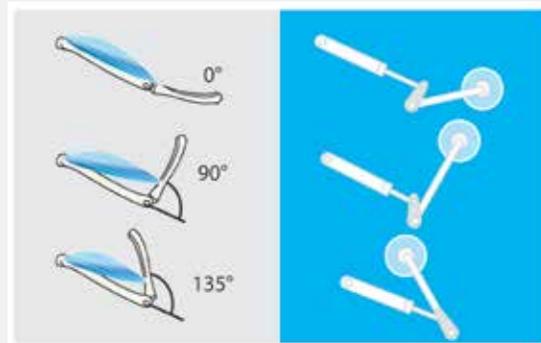


FOR WHEELCHAIR USERS

The HUR Easy Access version meet the specific needs of **wheelchair users** and those with mobility and sensory impairments.

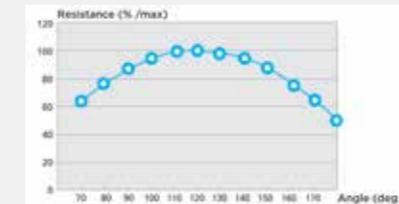


Pneumatic resistance

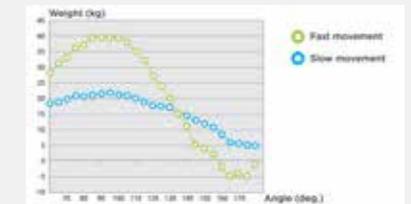


HUR machines function through a resistance method that employs a natural transmission of power, **Natural Transmission™, which simulates the natural function/movement of your muscles.** Using pneumatic technology and lever arms, resistance is adjusted in accordance with your muscles’ natural generation of muscular force.

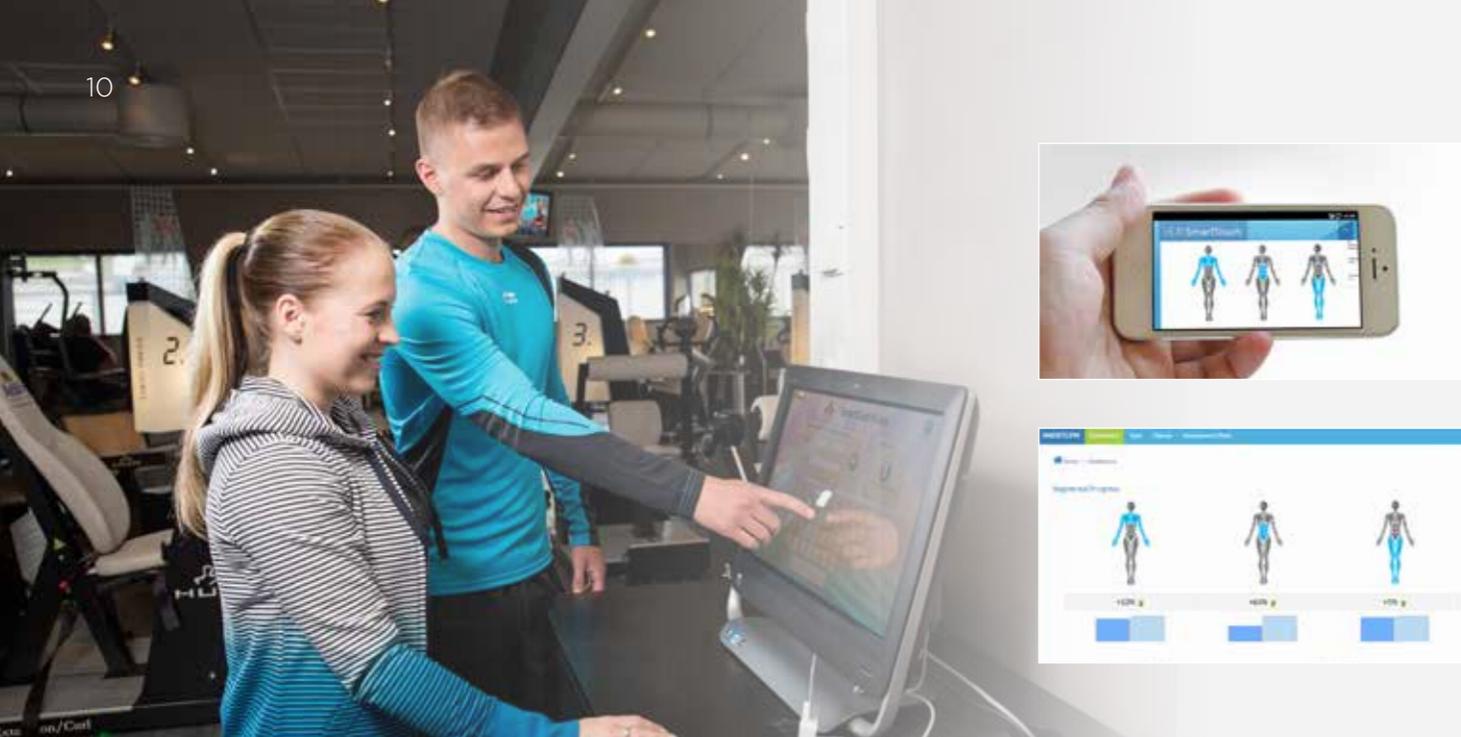
The workload is applied more specifically to the muscles for more effective results. **It mimics the natural function of the muscles.**



With HUR’s **Natural Transmission** method, based on pneumatic technology, resistance is adapted in accordance with the production of force, regardless of the speed of the movement.



Weight stack machines are more suited to slow, controlled movements. An increase in speed produces inertia, distorting the loading on the muscle, impacting on the joint and reducing the training effect.



HUR SmartTouch - An intelligent training and testing system for sports performance, rehabilitation and science.

HUR equipment come complete with a computerized, automated training system, HUR SmartTouch, which allows for evidence-based, smart and more independent exercise and rehabilitation

The necessity and use of data within exercise and rehabilitation has increased immensely in recent years. HUR recognized this early and a lot of the development

has been put into computerized exercise. For over 15 years HUR has been offering customers all over the world an intelligent exercise system for preventive, maintaining and rehabilitative training, as well as for research.

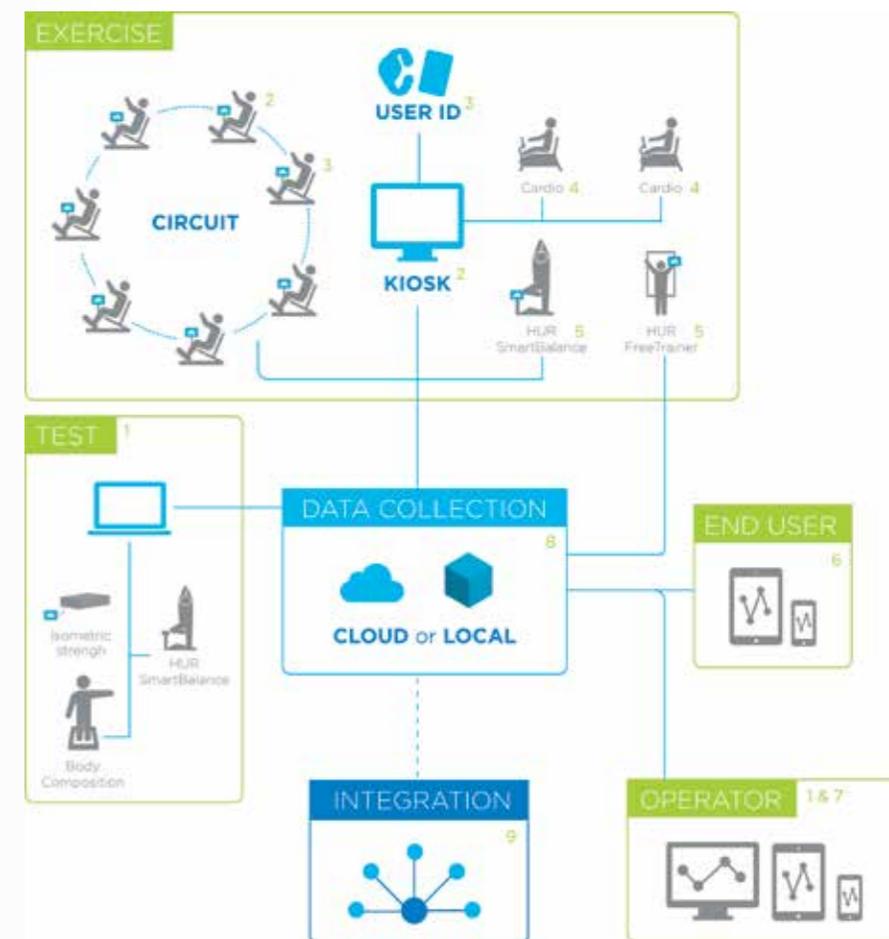
The HUR SmartTouch exercise system, with pneumatic strength training equipment, comprehensive testing equipment and an intelligent software, is the

culmination of almost 30 years of close co-operation with leading researchers in biomechanics and exercise physiology, as well as of learnings from customers and a focused product development. ::

THE HUR SMARTTOUCH ECOSYSTEM

The system includes the following:

- HUR Strength training and testing equipment
- HUR Balance testing and training equipment
- HUR Pulley Functional training
- HUR FreeTrainer with registration of equipment-free exercises
- Compatible with selected cardio equipment and other third-party solutions
- Possibility to integrate with other systems
- Operating software
- Automated benchmarking and reporting capabilities
- Optional online training and rehabilitation protocols
- Remote viewing to track utilization and efficiency
- HUR SmartTouch can be integrated with other applications/programs using Web Services or by using an integration engine for the HL7 interface.



HUR TRAINING SOLUTIONS

HUR is a complete solution for training and testing. HUR offers a wide range of strength training devices for exercise and rehabilitation, a smart exercise system with software for automated reporting and follow-up - HUR SmartTouch, compatible cardio products and versatile testing products for assessing balance, maximum strength and jumps

Check out the HUR Product Catalogue for a complete product list and detailed product information.

HUR Strength training equipment

This equipment range, which is suitable for a variety of ages and abilities, incorporates many features that enhance safety and facilitate rehabilitation, for example, range limiters and additional supports. HUR Premium Line equipment is recognized as medical devices.



- › Computerized training and operations
- › Close to zero starting load
- › 100g / 1/4 lbs. increments
- › Automatic resistance increase
- › Safe natural movements
- › Air resistance
- › HUR Medical Concepts with training programmes
- › Group test comparison



HUR Pulley Functional Trainer

HUR Pulley offers a large range of exercises in one machine. As with all other HUR machines it uses pneumatic technology which enables perfect balance between exercise load and the muscles' output force, regardless of the speed of the movement.

- › Over 20 different exercises in one machine
- › The starting resistance is close to zero, and increase resistance with as little as 100g/ 1/4 lbs
- › Fully enclosed mechanism enhances safety and aesthetics
- › Dual handles and an adjustable height cable column enable performing numerous exercises
- › With a wide range of accessories HUR Pulley is suitable for exercising the entire body



HUR FreeTrainer

The HUR FreeTrainer allows you to add equipment-free exercises, e.g. stretching and active static workouts, into your exercise palette and training programmes, in addition to regular exercises performed with HUR machines.

- › Perform equipment-free exercises within the HUR SmartTouch Ecosystem
- › In sync with the user's HUR SmartTouch profile
- › Paper-free training programmes and instructions
- › Automatic follow-up and reporting.

Cardio Compatibility

Please check the HUR website for cardio equipment from selected brands that can be connected to the HUR SmartTouch system

HUR TESTING SOLUTIONS

HUR has specialized in developing and manufacturing professional products for measuring human performance. The products are manufactured to the highest quality, with scientific levels of accuracy and without compromising ease of use, for researchers and research facilities, physical and occupational therapists and sports coaches and teams alike.

Check out the HUR Product Catalogue for a complete product list and detailed product information.

HUR SmartBalance

HUR SmartBalance is a complete package for independent balance training and for basic fall risk assessment. The system is easily controlled via the touch screen computer featuring the **HUR SmartBalance software**.



- › Large normative data
- › Includes five training protocols with various levels and difficulty stages
- › Select your wanted protocol from a wide touchscreen and the training can begin
- › Based on the test results you can plan accurate balance training to strengthen the discovered weaknesses and enhance the person's balance

Jump testing



The **HUR Force Platform Software** is a complete package for your jump testing needs. It features **pre-programmed testing protocols** for squat, counter movement and drop jumps as well as a general data acquisition module which can be used for analyzing balance or reaction forces.

Included with the Force platform. HUR Force Platform Software for professional athletes.



Isometric strength testing



The Performance Recorder is a portable general-purpose **strength measuring device**. It consists of an accurate industrial grade strength sensor (0-500 kg) and accompanying electronics which record the values from the sensor **a 100 times per second**. It can be directly connected to all HUR strength training exercise machines.

- › General data acquisition
- › Device database
- › Group and persons database
- › Record for later analysis
- › Printable test reports
- › Person test comparison
- › Group test comparison





SETUPS



Recommended **entry** setup



ST5120-Hi5
Push Up / Pull Down



ST5530-Hi5
Leg Extension / Curl



ST8830-Hi5 /
ST8831-Hi5 Pulley



9200 Performance
Recorder

Recommended **standard** setup



ST5310-Hi5
Abdomen / Back



ST5530-Hi5
Leg Extension / Curl



ST5120-Hi5
Push Up / Pull Down



ST5520-Hi5
Adduction / Abduction



ST5140-Hi5
Chest Press



ST5540-Hi5 Leg Press



ST8830-Hi5 /
ST8831-Hi5 Pulley



2031 HUR
SmartBalance



2003 Jump Test
Force Platform FP8



9200 Performance
Recorder



Recommended **extended** setup

 ST9330-Hi5 Twist Easy Access	 ST5120-Hi5 Push Up / Pull Down	 ST5520-Hi5 Adduction / Abduction	 ST3320-Hi5 Back Extension	 ST5540-Hi5 Leg Press	 ST5175-Hi5 Optimal Rhomb
 ST5310-Hi5 Abdomen / Back	 ST5140-Hi5 Chest Press	 ST5530-Hi5 Leg Extension / Curl	 2031 HUR SmartBalance	 2003 Jump Test Force Platform FP8	 9200 Performance Recorder

Example Design Of A Full Sports Centre





REFERENCES

CENTRE OF SPORTS EXCELLENCE IN THE HEART OF EUROPE

CZECH REPUBLIC • Olomouc University BALUO Sports Centre is a sports centre of Excellence and open to the General public, students and high-end athletes alike. The state of the art facility is made possible by funding from the Czech government, Olomouc University and the European Union.

“There is no other facility like this in the Central Europe.” says Ilona Hapkova, Associate Professor and Director of the centre. The aim is to provide a facility for the High-end athletes and National teams in the Czech Republic. It is also equipped with the latest in technology to serve the research activities of companies of the University and for educational purposes as well. The Olomouc University 24.000 students from 8 faculties will use the centre for practical sessions, as part of

their education. “The centre will be open for the public, and it is my hope that we will be able to educate people about the role and importance of exercise to counter lifestyle diseases. This is the first center in the Czech Republic for preventive health where you diagnose the condition and then recommend an appropriate physical activity.

All persons participating in the programs first go through a screening, and then we create a program based on their level and abilities. At the first stage, the emphasis is on teaching them proper skills instead of jumping directly to the strength regimen. This enables them to enjoy the training more and hopefully prevent injuries from happening at a later stage,” says Director Hapkova.

The centre chose a full line of the HUR Smart Touch Cloud based equipment. “HUR was the only company who could offer a complete solution that suits not

only the high-end athletes, but also young people and persons with specific needs, with corresponding equipment and software. With this system it is possible to cooperate with other universities, and there is already an Erasmus project planned in collaboration with partners from Germany, Finland and Latvia. It benefits greatly for collaborative research, as all universities can link up to the same common database.”

“HUR WAS THE ONLY COMPANY WHO COULD OFFER A COMPLETE SOLUTION THAT SUITS NOT ONLY THE HIGH-END ATHLETES, BUT ALSO YOUNG PEOPLE AND PERSONS WITH SPECIFIC NEEDS, WITH CORRESPONDING EQUIPMENT AND SOFTWARE.”



SHANDONG LUNENG TAISHAN FOOTBALL CLUB IN CHINA HANDPICKED HUR EQUIPMENT FOR HIGH SPEED AND REHABILITATION TRAINING

CHINA • Shandong Luneng Taishan Football Club was initiated and established by Shandong Luneng Share-holding Corporation on January 5, 1998.

Over the years, Luneng Taishan FC has provided more than 30 players to the national team and over 60 players for the national youth and Olympic teams.

Shandong Luneng Taishan Team has made great achievements since its founding. The club has won two of the National Series A League championships, the Football Association Cup in 1999 and became the first “Champion of Two Titles” in China’s football history. The new base of Luneng FC came into use September 2013. They chose HUR products to do high speed and rehabilitation training.



ACCESSIBILITY AND USER FRIENDLINESS IN SPORTS REHABILITATION AT BRUNEI’S SPORT MEDICINE & RESEARCH CENTRE

BRUNEI • With the growth in development in Brunei Darussalam, HUR was introduced to Brunei’s Sport Medicine & Research Centre (SMRC) with the aim to assist the country’s athletes and para-games athletes in strength training and rehabilitation therapy.

“The easy access function and user friendliness of the equipment, in addition to the comprehensive reporting system



with appropriate feedback, makes the HUR system stand out against competitors,” says Dr. Danish Zaheer, Head of Department, Sports Medicine & Research Centre, Sport Medicine Specialist.

Currently, 26 units of HUR equipment with HUR SmartCard System have been installed at SMRC. About 29 sports groups- including training groups of par-athletes, have been using the HUR System since. Some of the groups using the HUR System have been: Silat Soccer,

Athletics, Karatedo, Taekwondo, Badminton, Tennis, Lawn Bowls, Wushu (martial arts), Sepak Takraw and Rowing.

“THE EASY ACCESS FUNCTION AND USER FRIENDLINESS OF THE EQUIPMENT, IN ADDITION TO THE COMPREHENSIVE REPORTING SYSTEM WITH APPROPRIATE FEEDBACK, MAKES THE HUR SYSTEM STAND OUT AGAINST COMPETITORS”



NATIONAL HANDBALL ACADEMY BALATONBOGLÁR

HUNGARY • Hungary has a respected position among the top ranking nations of handball sport. The golden years of Hungarian handball include the Olympic gold medals in 1949 and 1965 and the European championship gold medal in 2000.

The continued success of the sport looks promising with the ongoing popularity of the handball game in Hungary, which has more than 28,000 active players across 578 teams, 54% of active players are under 18 years.

Recognizing the popularity of handball sport as a free-time activity, The Hungarian Handball Federation has elaborated a long term strategy to develop the sport as a Preferred National Sport in Hungary. Together with its

development partners it founded a modern training complex, the National Handball Academy, in order to provide up-to-date competition, training and educational facility for the different types of handball sports.

The planned multifunctional complex would serve as a base for other court games like basketball, volleyball, wrestling, and fencing, and the design of the facility reflects both the functional specification of the Hungarian Handball Federation and the requirements of other court games, on both professional and amateur level.

In addition to the core sports functions, the facility has been designed to integrate educational, conference and touristic features in order to increase the viability of the project. The positioning of the different buildings has been designed to create **all access areas**

on the front entrance of the site while offering **quiet zones** for the sportsmen at the back.



“TOGETHER WITH ITS DEVELOPMENT PARTNERS IT FOUNDED A MODERN TRAINING COMPLEX, THE NATIONAL HANDBALL ACADEMY, IN ORDER TO PROVIDE UP-TO-DATE COMPETITION, TRAINING AND EDUCATIONAL FACILITY FOR THE DIFFERENT TYPES OF HANDBALL SPORTS.”

STRENGTH TRAINING IN ORTHOPEDIC REHABILITATION AT BEIJING A-T PHYSICAL THERAPY CENTER

CHINA • China's Beijing A-T Health Technology Co. Ltd. is a pioneer in the sports medicine and physiotherapy industries, and completed the first HUR SmartTouch installation at their Beijing A-T Physical Therapy Centre where 13 units were installed in total.

Mr. Tan Chao, CEO of Beijing A-T Health Technology Co. Ltd., was introduced to HUR products two years ago, and has been following up on the product development ever since. “I am a big fan of HUR products. So when I was planning the center [Beijing A-T Physical Therapy Centre], I wanted to build a place with the best and most advanced rehabilitation devices and machines.”

Beijing A-T Physical Therapy Center targets patients in rehabilitation after ACL surgery and other orthopedic surgeries, as well as the middle age group who are seeking strength training and exercises. According to the team, the equipment has thus far received positive feedback from both patients and physiotherapists.

“WHEN I WAS PLANNING THE CENTER [BEIJING A-T PHYSICAL THERAPY CENTRE], I WANTED TO BUILD A PLACE WITH THE BEST AND MOST ADVANCED REHABILITATION DEVICES AND MACHINES.”





ZTE ZALAEGERSZEG FOOTBALL CLUB USES HUR EQUIPMENT FOR REHABILITATION, HIGH SPEED EXERCISE AND STRENGTH TRAINING

HUNGARY • ZTE Zalaegerszeg Football Club traces its roots back to 1912, at the time of the Austro-Hungarian Empire. It has provided several players to both the national team and the national youth team, as well as the Olympic team. The teams have earned titles like the Hungarian League championships and the Hungarian Cup, and has played several seasons in the European Championships and European League.

The renovated base of ZTE Arena came into use in September of 2016, and for the new facilities ZTE chose HUR products to do high speed and rehabilitation training. The pneumatic system provides the ability to execute quick movements with a heavy load but without inertia.

According the Head of Physiotherapy

of ZTE, Tamas Poka, the HUR Force Platform provides an objective view on rehabilitation, and a clear picture on how the players improve in their jump and landing abilities at the Training and Rehab centre of ZTE Football Club.

"In every half season we make measurements with the platform so we can score the players and see if there is any need to work with them in this area. We also have a research group where we do 6-week plyometric training to improve their strength and jumping abilities", Poka explains. They do the activities in different groups; one plyometric group, one group who does myofascial stretching and correction exercises, and one control group that does regular exercises.

"We measure counter movement, squat jump abilities both with two legs and one leg, so that we can follow their improvements. We also check their landing data in order to prevent incidents

such as ankle sprains in the games.

"On the rehabilitation side we make the same measures with the balance tests, isometric force test, and the functional test as well. There is a correlation between the maximal isometric force tests and the jump tests. In every rehabilitation phase we make measures especially in ACL ruptures and muscle strains. If the functions and the test results are okay and there is no difference or just a minimal difference between the two legs, then we can move forward to the next step" Tamas Poka continues.

"THE HUR FORCE PLATFORM PROVIDES AN OBJECTIVE VIEW ON REHABILITATION, AND A CLEAR PICTURE ON HOW THE PLAYERS IMPROVE IN THEIR JUMP AND LANDING ABILITIES AT THE TRAINING AND REHAB CENTRE OF ZTE FOOTBALL CLUB."

RELIABLE CONCUSSION DIAGNOSIS IS THE KEY TO RECOVERY

Matti Vartiainen from University of Helsinki is conducting a sport concussion study for recognizing and thus treating concussions more effectively. A reliable diagnosis in head and neck injuries, where symptoms are extremely similar, is the key to recovery.



"The goal of the study is to protect athletes, who have suffered a concussion from training and competing too quickly after they have been injured. Returning to their sport too soon and without the right kind of rehabilitation contains a risk of permanent injury," says Vartiainen.

In the study, the usability of the HUR BT4 Balance Platform and especially the Romberg Quotient values were evaluated in determining concussion. 113 players from four of the Finnish highest-level ice-hockey league teams were measured pre-season to get a baseline result of their balance abilities. During one season, all concussions were taken into account. The concussed player was tested, at the latest, 36 hours after the incident. Nine players suffering from head or neck injury and seven voluntary non-concussed players were measured. The Romberg

Quotient includes testing the athlete with a closed stance (feet together) for minimal support area first on hard surface and second on the HUR foam pad for proprioception disturbance.

Each portion of the test lasts 30 seconds during which the subject must stand as still as possible. The tests are conducted with the eyes both open and closed. "The study revealed that the balance test using the Romberg Quotient, as described above, is a useful tool for the evaluation of concussion in athletes. This is a new method, which may be useful in determining other neurological states as well" Vartiainen concludes.

"THE STUDY REVEALED THAT THE BALANCE TEST USING THE ROMBERG QUOTIENT IS A USEFUL TOOL FOR THE EVALUATION OF CONCUSSION IN ATHLETES. THIS IS A NEW METHOD, WHICH MAY BE USEFUL IN DETERMINING OTHER NEUROLOGICAL STATES AS WELL"



BT4 and Balance Premium SW Testing at research level

The solution used in this study is a standard setup with HUR BT4 square-shaped balance platform and the accompanying Balance Premium software. The BT4 can be used for testing in the field as it weights only 11 kg and it takes its power from the USB port of a laptop. Concussion testing adds



yet another dimension to the versatile balance platforms.

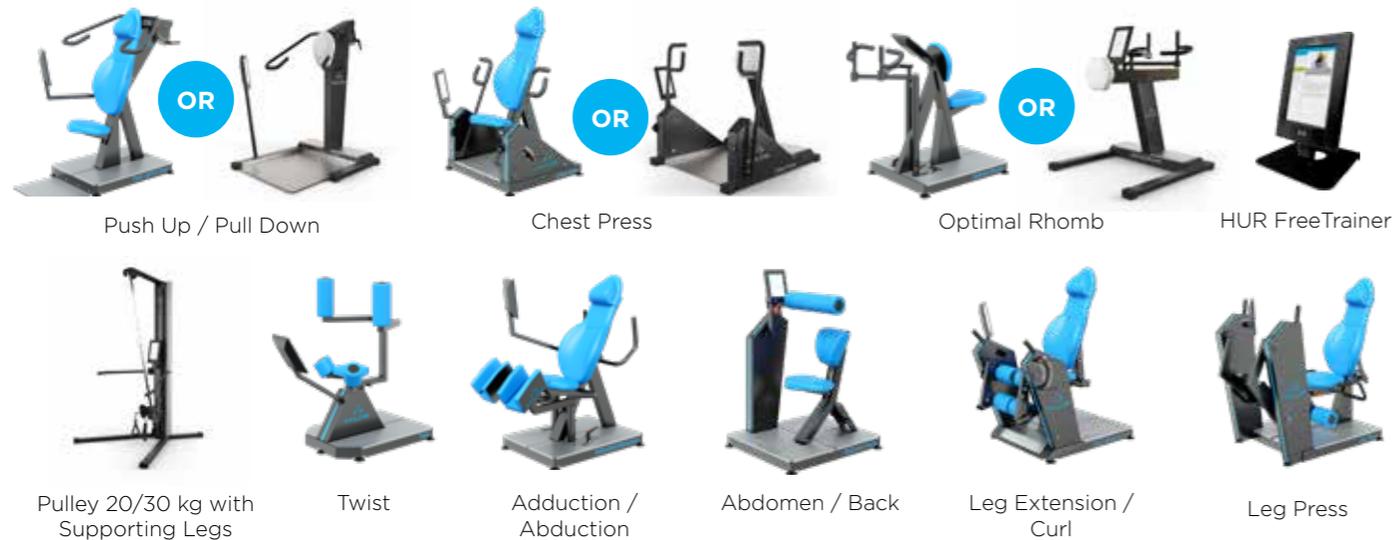
The HUR balance platforms can be used in concussion testing as such; no additional software or hardware is required. The test method used is extremely easy to conduct, and the results are easy to interpret from the iBalance Premium Software

CHOOSE THE RIGHT EQUIPMENT FOR YOUR FACILITY

The HUR SmartTouch gym is an excellent research tool for large quantity exercise research in high-end sports science, rehabilitation and regular gym visitor research.

Each machine is networked. The angular velocity, duration and the resistance curve are being saved and sent to the SmartTouch cloud automatically after each session. The cloud based reporting system will analyze the information and calculate, e.g. power and intensity, for each device (muscle group) separately and provide clear and understandable feedback - both numerical and graphical. **All raw data is stored and can be exported for number crunching in external software.** ::

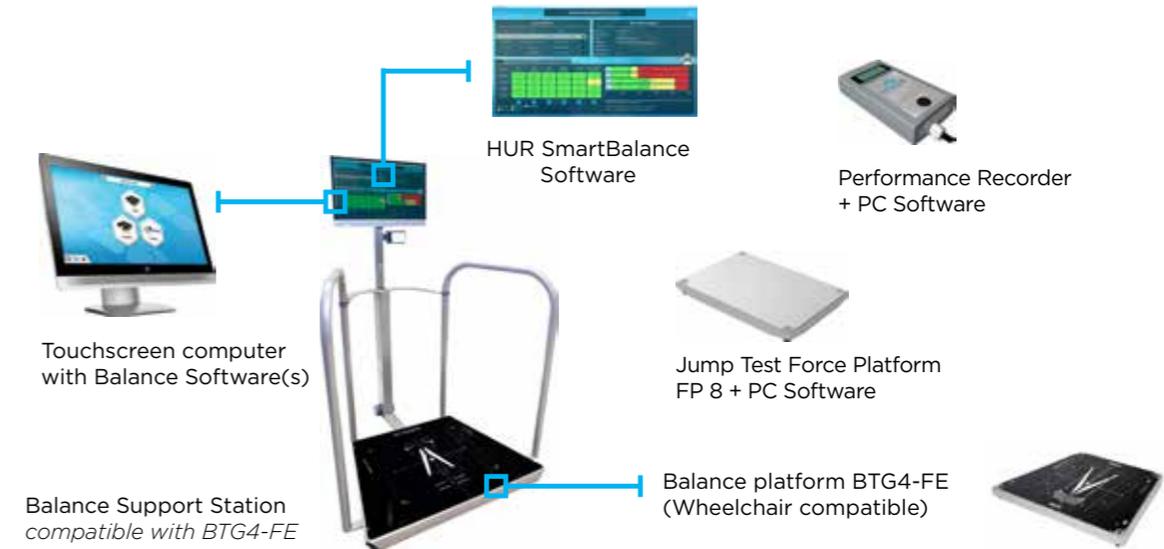
Strength Training Equipment



Software Solutions



Testing Solutions



JOIN US IN ACTION FOR LIFELONG STRENGTH!

Contact us for a design of your wellness center or training area and for more information about the process of starting a wellness program for sports and rehabilitation.



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