

A close-up photograph of two women smiling warmly. The woman on the left is older, with short, wavy grey hair, wearing a light pink top. The woman on the right is younger, with long blonde hair, wearing a dark blue top. They are embracing each other, with their hands clasped together in front of them. The background is softly blurred, suggesting an outdoor setting with natural light.

LET'S GIVE THEM
THE **STRENGTH**
THEY DESERVE

A world map with a light blue background and darker blue outlines for continents and countries. Numerous small, light blue location pins are scattered across the map, indicating the presence of installations in various countries across all six continents. The pins are most densely clustered in Europe and Asia, with several in Africa, South America, and Australia. The map includes labels for major countries and oceans.

ALMOST **30 YEARS**
10,000 INSTALLATIONS
SIX CONTINENTS



ON A JOURNEY FOR LIFELONG STRENGTH

The right kind of exercise changes lives of our older adults around the world. I have witnessed how just a couple of months of regular strength exercise can light the spark and help people to recover their physical and mental health.

These are real life miracles thanks to science. A person suffering from the lung disease COPD could start going for walks in the park again, after only having the strength to walk for a few meters. A man suffering from dementia and mainly in bedcare, became happier and calmer thanks to exercising just twice a week. A lady was thrilled at being able to do some dusting again – and taking a bath!

These stories are the reason why I love what we do at HUR. We all deserve Lifelong Strength – and it's never too late to become stronger.

I have met people over 90 who just started doing strength exercise – and they love it. One might think: how is this possible, and even safe? **For almost 30 years we have been working together with the research community to be able to develop the best strength equipment possible for the elderly, and today we have around 10 000 installations worldwide.** Thanks to extensive research, state of the art technology and a great deal of passion for our mission, we are able to provide safe and efficient exercise solutions for different ages and abilities, which is beneficial not only for the individual but for society as a whole.

Lena Karjaluoto, Executive Vice President, HUR

AN INTELLIGENT EXERCISE SYSTEM ESPECIALLY DEVELOPED FOR **ACTIVE AGEING AND REHABILITATION**



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 or nurse 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 and maximum strength (more about the HUR SmartTouch system on pages 10 and 11).



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.

The right kind of muscular strength training is what we all need – especially senior citizens, to be able to maintain mobility and stay independent as long as possible. HUR's air resistance equipment allows older people to exercise more safely by reducing stress on joints and connective tissues.



**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.



MEDICAL CERTIFICATED

HUR equipment is developed on a university level and HUR Quality Management System is certified with ISO 13485:2003 and ISO 9001:2008 standards.



**FOR
WHEELCHAIR
USERS**

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





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

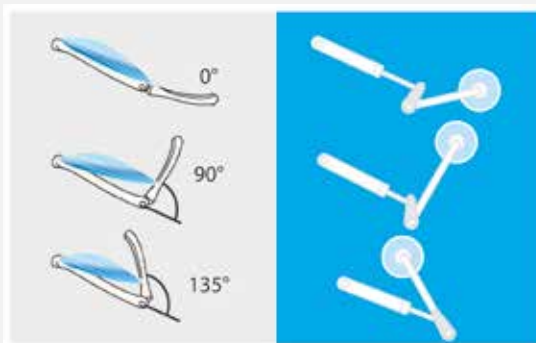
Space is no issue. Many of HUR machines are dual function, they require little space and are also very quiet which offers the possibility to place them almost anywhere, for example in a coffee room or in a hall.



MAXIMUM PERFORMANCE

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

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.

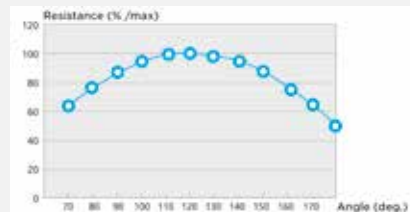
The workload is applied more specifically to the muscles for more effective results. **It mimics the natural function of the muscles.**



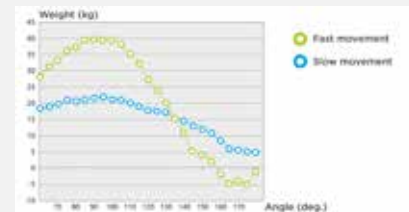
HIGH-SPEED TRAINING

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, 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.



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 active ageing and rehabilitation

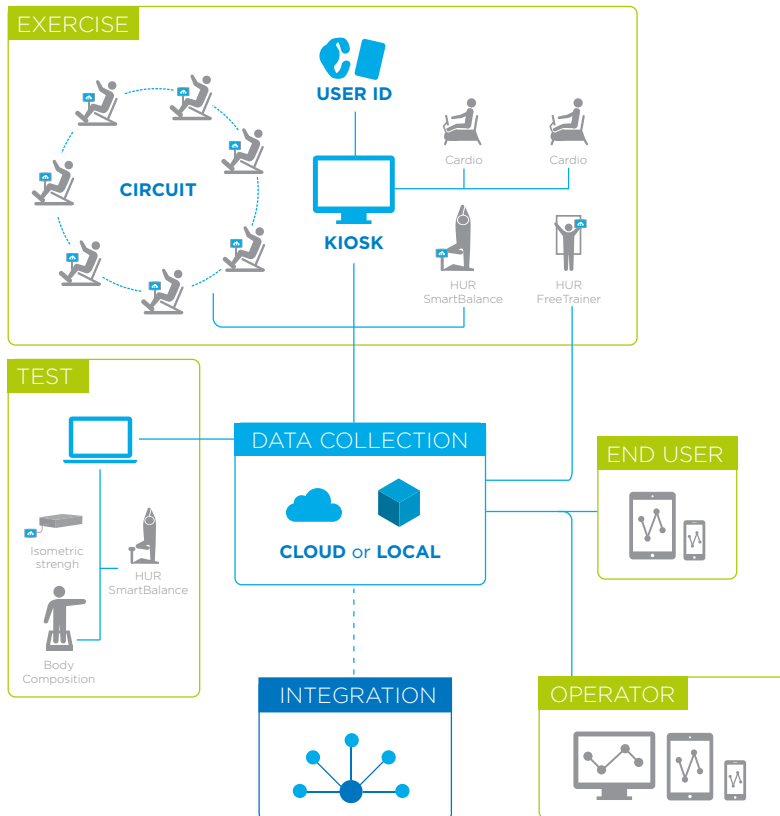
HUR equipment come complete with a computerized, automated training system, HUR SmartTouch, which allows for evidence-based, smart and more independent exercise and rehabilitation

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
- › Can be integrated with other applications/programs (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.

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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, for researchers and research facilities as well as physical and occupational therapists.

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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

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.

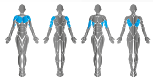
- › General data acquisition
- › Device database
- › Group and persons database
- › Record for later analysis
- › Printable test reports
- › Person test comparison
- › Group test comparison





SETUPS

Recommended entry setup



ST5120-Hi5
Push Up / Pull Down



ST5530-Hi5
Leg Extension / Curl



ST8830-Hi5 /
ST8831-Hi5 Pulley



9200 Performance
Recorder



HUR FreeTrainer



Recommended standard setup

  <p>ST5310-Hi5 Abdomen / Back</p>	  <p>ST5530-Hi5 Leg Extension / Curl</p>	  <p>ST5120-Hi5 Push Up / Pull Down</p>	  <p>ST5520-Hi5 Adduction / Abduction</p>	  <p>ST5140-Hi5 Chest Press</p>
  <p>ST5540-Hi5 Leg Press</p>	 <p>ST8830-Hi5 / ST8831-Hi5 Pulley</p>	 <p>2031 HUR Smart- Balance</p>	 <p>9200 Performance Recorder</p>	 <p>HUR FreeTrainer</p>



Recommended extended setup



ST9330-Hi5
Twist Easy Access



ST5120-Hi5
Push Up / Pull Down / Abduction



ST5520-Hi5 Adduction



ST3320-Hi5
Back Extension



ST5540-Hi5
Leg Press



ST5175-Hi5
Optimal Rhomb



ST5310-Hi5
Abdomen / Back



ST5140-Hi5
Chest Press



ST5530-Hi5
Leg Extension / CurBalance



2031 HUR Smart-
Balance



9200 Performance
Recorder



HUR FreeTrainer



Example Design of A Full Medical Fitness Centre





REFERENCES

BALLYCARA, AUSTRALIA

AUSTRALIA • **BallyCara** is owned and operated by the **Queensland Hibernian Friendly Society (QHFS)**, a charitable organisation that has been serving the community of Queensland for over 115 years. BallyCara is a provider of residential aged care, home care and retirement living and is forging new frontiers to enable people to live fulfilling lives regardless of age through the provision of individualised care, services, and contemporary community and accommodation infrastructure.

In 2013, BallyCara opened a contemporary Wellness Centre at their foundational site **Scarborough Queensland** complete with space for gym, multipurpose rooms, a co-located Café and adjoining swimming pool. As part of the strategic visioning for BallyCara, the establishment of a Wellness

Program was pursued after an extensive planning and co-design process. **BallyCara realised the benefits of the HUR gym equipment and the alignment with the intent of the Wellness Program - to provide safe, individualised strength-based exercise programs for village residents and the broader seniors community.**

Today there are approximately 200 active Wellness members who utilize the HUR gym equipment under the supervision of three qualified Exercise Physiologists, **Paul Johnson**, Chief Opportunity Officer with BallyCara says.

“The senior friendly design of the HUR equipment along with the ability for individual programming and monitoring have been key success factors of the Wellness Program”.



TAIJUKAI, TOKYO

TOKYO *Taijukai*, a rehabilitation center for senior citizens, is a social welfare corporation owned by several different nursing homes. The center, located in Saitama Prefecture near Tokyo, was founded in 1994 and has been successfully using HUR since 2003.

"We chose HUR equipment because it is quiet, requires little space and has more friendlier, less machine-like appearance. The average age of users in the rehabilitation center is 80. In our experience the equipment has proven to be very effective. Those of our clients who were able to walk now walk even

more briskly, and several who arrived in wheelchairs have left here walking"
- Naoki Inoue, Director



SUOMEN FYSGIOGERIATRIA, FINLAND



FINLAND • **Suomen Fysiogeriatría Oy** specialises in geriatric physiotherapy and comprehensive rehabilitation for the elderly, people with memory disorders and veterans at home, at nursing homes and at rehabilitation centres.

"We have been using the computerized HUR equipment

for rehabilitation of seniors and people with dementia since 2010. **Our physiotherapists and our clients really appreciate the benefits and possibilities of the HUR products - they are safe and easy to use - and they provide us with important data for client follow-up and motivation,"** says **Katja Sohlberg**, CEO of Suomen Fysiogeriatría

The physiotherapists specialising in geriatrics and elderly patients possess the latest knowledge and skills related to the rehabilitation of the elderly. The goal is to enhance quality of life and happiness, regardless of the client's age or situation.

BLOMSTERFONDEN, SWEDEN

SWEDEN • Blomsterfonden is a nonprofit organization founded in 1921, that works to provide a safe home and professional, loving care for seniors.



Elderly Power. What started as a project in one of our senior homes has now grown to be an integral part of what we offer our residents. Strength training does not only give us stronger and more independent senior citizens, but also helps them to be more active and happy.

Blomsterfonden started the project together with HUR in 2012 and we are still to this day partnering. The technology and knowledge that HUR offers are exactly what we need to make this happen. As one of our senior citizens told us “I am so thankful for this project. Today I can

do things I could not do a few years ago. I got my life back!”
“HUR has done more than just delivering the equipment, they also bring us knowledge”

–Christel Haglund,
Head of nursing and care / VP ::

BODYBRAIN, SWITZERLAND

SWITZERLAND • **BodyBrain** is a brand new centre of physical and cognitive activities in Vevey, Switzerland. The centre offers specific training methods for seniors (50+), **focused on preventive exercise, cardiovascular rehabilitation, falls prevention and maintaining cognitive abilities.** This is enabled by a combination of the HUR SmartTouch strength training concept, the Dividat Senso cognitive solution and the Scifit cardio equipment with HUR SmartTouch compatibility.

Everything started with **Chantal**

Sauer and her deep empathy towards her beloved mother, suffering from Alzheimer’s disease. Ms Sauer was also profoundly affected by the condition of other residents living in the same senior home as her mother. Thus Chantal Sauer promised to create a centre for physical and cognitive training, focusing on preventing the main causes of loss of independence; falls, cardiovascular disease, Alzheimer’s disease and other forms of dementia. In other words, **the mission of BodyBrain is to offer 50+ people the possibility to age in good shape.** ::





MONTEFIORE, AUSTRALIA

AUSTRALIA • **Montefiore Home** is a not-for-profit charitable organisation and has been serving the needs of Australia's Sydney Jewish seniors for the past 120 years. In order to improve the residents' physical and mental wellbeing, and to further enhance its range of services, Montefiore recently adopted HUR's exercise equipment and programme. A total of 7 units were installed at Montefiore's Randwick campus in Sydney. Montefiore shares the effectiveness of the regime.

"Montefiore's 'Philosophy of Living' approach to Person Directed Living (PDL) encompasses 3 elements: Choice, Dignity and Wellbeing.
By adding HUR's sophisticated

exercise equipment to our current resources, Montefiore can provide greater choice to enhance residents' physical and mental wellbeing.

"Residents were hesitant at first as it was a new and different way of conducting individual and group exercises. However, even the residents have surprised even themselves at how much they have enjoyed exercising. We have had a few residents who were not keen to exercise previously, but have begun the exercise programmes and are continuing with them currently. They get a great deal of satisfaction using the 'fancy' equipment, and most importantly in the improvements that are tracked over the course of their

training sessions. Our therapists like the ability to progressively load and track various muscle groups (especially the lower limbs) in a controlled and objective manner. The computer software and machine range of motion limiters allow greater control and individualisation of group exercise sessions. ❖



GYM TONIC, SINGAPORE



SINGAPORE • The **Gym Tonic** research programme was launched on the 16th of April 2015 by the **Lien Foundation**, in partnership with Pulesync, Raisoft, and HUR. Its aim is to help seniors lead a more active lifestyle through customised strength training programs in combination with rehabilitative exercises, to help prevent and deal with events such as falls and strokes. **By partnering with the WELMED measurement laboratory developed by the University of Jyväskylä in Finland, the programme is simultaneously conducting research on how to improve physical and mental health among seniors.**

The project has had a positive impact on both staff and clients all through the 21 senior care facilities that have adopted the program so far, reaching an estimated 2,000 citizens. The manager of **Man Fut Nursing Home**, **Ms P. Manchu**, says that **the facility spent two years searching for equipment that had been designed with seniors in mind as “the usual gyms are unsuitable for the elderly, especially those with osteoporosis.”** Each of the elderly care facilities involved in the Gym Tonic programme has received a range of six pneumatic strength training machines and two measurement devices from HUR. Exercise therapist **Andrew Yeo** at **Peacehaven Nursing Home** is concerned about the physical

inactivity among senior citizens. “The frail are often caught in a vicious circle of inactivity. Afraid of falling, they don’t exercise and this makes them weaker to the point of being bed-bound”, he says.

Mr Tan Cheng Hong, 77, was afraid to go to the bathroom because of his arthritic knees, but has now regained his confidence and is able to do 20kg presses on a leg machine. Another fellow resident at Peacehaven, **Ms. Jennifer Ng**, 75, was able to reduce her high blood pressure that interfered with her everyday life. Working out has made her feel more energetic.

“Research shows that instead of overprotecting seniors, they should be put in a gym to build up their strength to prevent incidents such as falls”, says Lien Foundation chief executive Lee Poh Wah. “Longevity must be coupled with a life that is worth living.” ❖





STUDIES

Rate of Falls was reduced by 55% according to the Sunbeam Study

Approximately 30% of adults over 65 years of age living in the community fall each year (Gillespie et al. 2012). Falls in care facilities and hospitals are common events that can cause serious injury and death, imposing a significant social and economic burden on individuals, their families, community health services and the economy. **As the proportion of older adults continues to increase globally, the financial costs associated with falls will increase worldwide** (Burns et al. 2016). **Therefore, prevention of falls is an urgent public health challenge.**

The risk of falling may be predicted from many risk factors. Accidents and environment-related reasons are the most commonly recognized events leading to falls. Most of such falls are associated with one or more identifiable risk factors, e.g. reduced muscle strength, gait or balance disorders, confusion, postural hypotension, visual disorders and certain medications. **Large body of research has shown that attention to these risk factors can significantly reduce rates of falling.** (Rubenstein et al. 2006) In fact, the latest meta-analysis published in JAMA (Tricco et al. 2017) showed that in a network meta-analysis including 54 studies and 41,596 participants (mean age 78 years; 74% women), exercise alone and various combinations of interventions including

exercise, vision assessment and treatment, and environmental assessment and modification **were associated with markedly lower risk of injurious falls (about 50%) compared with usual care.** These results highlight the message encouraging aging adults to exercise.

In addition to increased muscle strength, strength training offers numerous other benefits for older adults. It has been clearly shown to lead to improvements in balance, functional mobility, stability limits, quality of life and falls prevention. **A cluster randomized controlled trial of 16 residential aged care facilities and 221 participants (mean age 86 years; 72% women) showed important reduction in fall rate** (Hewitt et al. 2018). In this study, the exercise group participated in progressive strength training using HUR intelligent technology plus balance exercises 2 times per week for 25 weeks, followed by a 6-month maintenance program performed similarly 2 times per week. The rate of falls was reduced by 55% in the exercise group compared to the usual care group, and the exercise group also showed an improvement in physical performance without serious events.

<http://www.hur.fi/en/news/strength-falls-prevention>



Strength-balance supplemented with computerized cognitive training to improve dual task gait and divided attention in older adults: a multicenter randomized-controlled trial

van het Reve E, de Bruin ED, BMC Geriatrics 2014, 14:134 (15 December 2014)

Exercise interventions often do not combine physical and cognitive training. However, this combination is assumed to be more beneficial in improving walking and cognitive functioning compared to isolated cognitive or physical training.

Combining strength-balance training with specific cognitive training has a positive additional effect on dual task costs of walking, gait initiation and divided attention. The findings further confirm previous research showing that strength-balance training improves executive functions and reduces falls.

<http://www.hur.fi/en/news/new-study-shows-strength-balance-training-has-positive-effect-dual-tasks-older-adults>



Effects of strength and endurance training on thigh and leg muscle mass and composition in elderly women

Sipilä S, Suominen H.

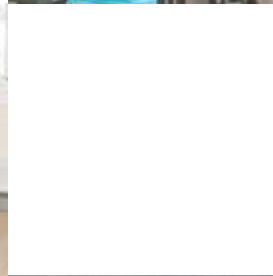
J Appl Physiol. 1995 Jan;78(1):334-40

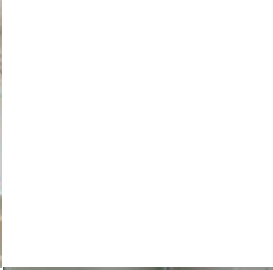
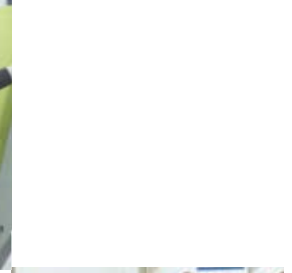
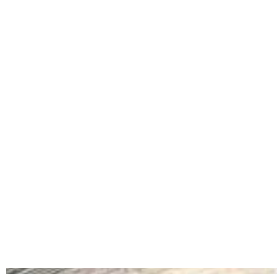
The effects of 18 weeks of intensive strength and endurance training on knee extensor, knee flexor and lower leg muscle mass and composition were studied in 76- to 78-year-old women. Muscle cross-sectional area (CSA), lean tissue CSA, and relative proportion of fat were determined using computed tomography. The strength-trained women increased their total muscle lean tissue CSA of the thigh (1.5%; $P = 0.035$), quadriceps CSA (4.5%; $P = 0.021$), quadriceps lean tissue CSA (5.8%, $P = 0.009$), and mean Hounsfield unit of the lower leg muscles (11.2%; $P = 0.035$) compared with the changes that occurred in the

control group during the experiment. The change in quadriceps lean tissue CSA because of the strength training was also significant compared with that in the endurance group. The relative proportion of fat within the quadriceps muscle decreased due to the strength training compared with the changes that occurred in the endurance group. The results show that intensive strength training can induce skeletal muscle hypertrophy in elderly women and thereby also reduce the relative amount of intramuscular fat, whereas the effects of endurance training are negligible.

<http://hur.creamailer.fi/assets/uploads/4386b9ed941a611d10cbe3626047fab11214a71d/shared/files/effect.pdf>

PEOPLE OF **DIFFERENT AGES**
AND ABILITIES WORLDWIDE
ARE #POWEREDBYHUR





JOIN US IN ACTION FOR LIFELONG STRENGTH!

Contact us for a design of your wellness center/
training area and for more information about the
process of starting a wellness program for
older adults.



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