The first time I saw Dr. Yoshiaki Sato, the KAATSU inventor, work on a patient who was recovering from a knee surgery, his actions and the words of the patient completely changed my mindset on what was possible with KAATSU as a rehabilitation modality.

I learned from Dr. Sato of the importance of starting off conservatively with KAATSU (i.e., with low pressures) and then gradually increasing. The gradual engorgement of blood in the limbs is critical to helping increase vascular elasticity and helping the body repair itself through the production of nitric oxide and the secretion of Human Growth Hormone.

Everything that I knew about rehabilitation and recovery was radically upturned by observing Dr. Sato’s use of the KAATSU Master and KAATSU Air Bands over the years. Since starting KAATSU in 2001, I have indeed seen periods of incredibly fast and effective recoveries from broken bones, torn ligaments, pulled muscles, twisted ankles and broken ribs on NFL running backs and older men and women in their 80’s.

With the goal of sharing Dr. Sato’s invention and know-how with the rest of the world outside of Japan, the employees of KAATSU Global and KAATSU Specialists enjoy teaching KAATSU protocols to people of all ages, abilities and backgrounds.

This digital magazine is one means of sharing this information and various stories and experiences of KAATSU users with many others in the 32 countries where KAATSU is currently distributed.

Thank you very much for your interest and support.

Steven Munatones
Steven Munatones, CEO & Co-founder
KAATSU Global, Inc.
Huntington Beach, California, U.S.A.
Many athletes and other active people of various ages and backgrounds dislocate their shoulders or tear ligaments and tendons in course of their workouts or competitions. Many of these individuals use the KAATSU Master, KAATSU Master 2.0 or KAATSU Nano products for their rehabilitation and recovery. These are the key protocols that they follow to achieve rapid recovery:

1. Continue their existing physical therapy, using KAATSU to augment their recovery. That is, if they are doing 60 minutes of physical therapy, continue with the same movements and exercises, but add in KAATSU in the last 20-30 minutes.
2. Do KAATSU Cycle on both their arms and legs, regardless if the injury is in the lower body or upper body.

3. Be well-hydrated before and during KAATSU, and follow all standard KAATSU safety protocols.

4. Start with conservative Optimal pressures on the KAATSU Cycle (e.g., 200 SKU for the first KAATSU Cycle of 3 minutes 20 seconds). Then repeat a series of KAATSU Cycles with higher and higher Optimal pressures (e.g., 250 SKU, 275 SKU, 300 SKU, 325 SKU), always checking for proper Capillary Refill Time.

5. Never move the limb, joint or muscle to the point of pain. Stop just short of discomfort in any movement and move the limb slowly and steadily as the physical therapy movements are being done.

6. The limbs should be fully engorged with blood so the skin becomes a deep pink, beefy red or even a purple color.

7. Never simultaneously put on the arm and leg bands. Work only the upper body with KAATSU and then the lower body.

8. As the body becomes more accustomed to KAATSU, the Optimal SKU pressures will naturally increase.

9. Pay close attention to the appropriate Base SKU levels. It is best to place on the KAATSU Air Bands on snugly so you cannot stick your fingers between the bands and your skin.

10. Email KAATSU Global at info@kaatsu-global.com if you have any specific questions.

Photos above show young athletes doing KAATSU Cycles and 77-year-old swimmer Mike Allford of Boston working on his partly torn rotator cuff.
Robert Heiduk of KAATSU Germany worked with a young woman who had a ski accident 10 weeks ago. She could not raise her right arm above her shoulder before seeing Heiduk.

Heiduk used the standard KAATSU protocols that he learned from Dr. Yoshiaki Sato in Tokyo (i.e., KAATSU Cycle + movement under Optimal SKU pressure). Her range of motion before and after KAATSU is shown above as a result of a single KAATSU session.
KAATSU Cycle and KAATSU Training is used for a variety of purposes from athletic performance (increasing speed, strength, stamina or size) to rehabilitation to recovery.

For many users, the most effective functional movement with KAATSU is walking. That is, simply walking at a comfortable pace with the KAATSU Air Bands on your legs, a most common and popular form of KAATSU performed.

But there are some older or injured individuals who cannot walk (far) with KAATSU Air Bands. In these cases, they put on their KAATSU Air Bands on their legs and either:

» walk in place
» repeatedly stand up and down while holding a chair, table or wall
» lift up one foot up as repeated leg curls (alternating legs after 10-30 repetitions)

KAATSU functional movements can also be enhanced with KAATSU Air Bands or Aqua Bands during:

1. martial arts training or combative sports movements (e.g., throwing a jab or learning a new wrestling move)
2. swimming or aqua-walking
3. shooting (a basketball)
4. throwing (a baseball)
5. swimming or track starts
6. typing on a computer
7. swinging a tennis racquet or golf club
8. spinning on a stationary bicycle
9. jumping for specific sports (e.g., rebounds in basketball)
10. paddling or kayaking
11. walking up stairs
12. getting in and out of a chair or bed

Users should start with the KAATSU Cycle and then move right into their KAATSU functional movements of choice.

Alternatively, if functional movements are not possible due to age, injury or disability, the KAATSU 3-Point Exercises were developed for these individuals or others who want a specific set of exercises to repeat for their own rehabilitation or training program.

1. KAATSU 3-POINT EXERCISES FOR ARMS:
   a. Standard: 3 sets of Hand Clenches + 3 sets of Biceps Curls + 3 sets of Triceps Extensions
   b. Advanced: 3 sets of Hand Clenches with a squeeze ball + 3 sets of Biceps Curls with very light dumbbells + 3 sets of Triceps Extensions done slowly with muscle contraction

2. KAATSU 3-POINT EXERCISES FOR LEGS:
   a. Standard: 3 sets of Toe Curls + 3 sets of Toe Raises + 3 sets of Sitting Heel Raises
   b. Advanced: 3 sets of slow Standing Heel Raises + 3 sets of slow Standing Leg Curls + 3 sets of slow non-lock Quarter Squats

3. KAATSU 3-POINT EXERCISES FOR CORE (OPTIONAL):
   a. Standard (with KAATSU leg bands on): Sit up straight in chair + stretch arms and hands upwards in a long, slow stretch + bend forward breathing slowly
   b. Advanced (with KAATSU leg bands on): Balance on one foot (alternate feet) + balance on one foot while moving water bottles in hand + walk with a book on your head + balance
Whether an elderly person is recovering from a knee replacement or an Olympic athlete is rehabilitating from a double patella tendon rupture, KAATSU can be comprehensively incorporated into their recovery.

After the individual identifies their appropriate Base SKU, they can do a series of KAATSU 3-point exercises first on their arms and then on their legs. This can begin as early as 72 hours after surgery or as soon as their physician gives them the green light to begin.
KAATSU on the arms should always be performed first and will help initiate the positive system effects of KAATSU.

The KAATSU 3-point exercises on the arms include three sets of hand clenches, three sets of biceps curls, and three sets of triceps extensions. The hand clenches can be performed with standard hand grips and the biceps curls and triceps extensions can be performed either without weights or with filled water bottles, resistance bands or very light weights (>3 kg).

After the KAATSU arm session is completed within 15 minutes (maximum duration), the KAATSU 3-point exercises on the legs can begin as the individual remains well-hydrated.

The KAATSU leg exercises are very simple and can include 3 sets of toe curls, 3 sets of toe raises, 3 sets of heel raises (if possible), 3 sets of leg extensions (see below if possible) or 3 sets of simple quarter-squats (if possible). Even more easily and comfortably, aqua-walking in a shallow pool (>1 meter deep) is extremely effective.

Each of the sets of exercises on the arms and legs should become increasingly difficult due to the lactic acid build-up. If aqua-walking or aqua-therapy is used, the KAATSU Aqua Bands should only be on the legs for 20 minutes maximum.

Simple stretching in the water or walking in shallow-water pools is also very effective.

For an article about use of KAATSU Aqua by Olympic athletes, visit here (Déjà Vu, Training Of Misty Hyman Redux). For an article about the use of KAATSU Aqua by a 50’ish swimmer, visit here (A Positive Mindset For Brain Surgery). For an article about hard-core aquatic training, visit here (Aquatic Equivalents Of Brutal Dryland Workouts).
Danish national team swimmer Emilie Larsen and her trainer explain how she recovered quickly from an ACL injury with KAATSU.
Broken Bones + Rehabilitation = GREAT OPPORTUNITY for KAATSU

It is always a pleasure to work with athletically-minded individuals who cannot stand atrophying as they rehabilitate from injuries.

Jack [shown above] is one of those hard-charging athletes. A highly competitive motorcycle racer, Jack has broken dozens of bones throughout his career and has undergone his fair share of surgeries.

Then he discovered KAATSU with Dr. Arthur Ting of Fremont, California.

Below is a typical daily rehabilitation/training program for Jack: He comes into the KAATSU Studio well-hydrated and first works on his arms with the KAATSU Nano device and a medium set of KAATSU Air Bands. Then, he works on his legs.

He takes the time to accurately set his correct Base SKU and then identify his Optimal SKU using the standard KAATSU protocols. He understands well the subtle importance of safely and effectively compressing the venous flow in order to stimulate a systemic response from KAATSU.

Upper Body Workout
1. KAATSU Cycle once at 25 Base SKU and 150 Optimal SKU
2. KAATSU Cycle once at 25 Base SKU and 250 Optimal SKU, constantly checking CRT (Capillary Refill Time) to confirm Optimal SKU
3. KAATSU 3-point arm exercises to muscular failure: 3 sets of hand clenches + 3 sets of biceps curls (with 1 lb dumbbells) + 3 sets of triceps extensions

Lower Body Workout
1. KAATSU Cycle once at 25 Base SKU and 150 Optimal SKU
2. KAATSU Cycle once at 25 Base SKU and 300 Optimal SKU, constantly checking CRT (Capillary Refill Time) to confirm Optimal SKU
3. KAATSU 3-point leg exercises to muscular failure: 3 sets of heel raises + 3 sets of quarter, non-lock squats + 3 sets of standing hamstring curls

He also throws in an occasional walk with the KAATSU leg bands and does bouts of stretching while doing the KAATSU Cycle.
"My knee popped," recalled Josh Saunders, then a Goal Keeper with US MLS team, Real Salt Lake. "When I came down, I knew the injury was bad, but I had no idea what was to come." Saunders fears were confirmed - a torn left ACL, a bad, common football injury. However, Saunders injury became more than the typical case - it became life threatening. Two weeks after surgery, Saunders not only contracted a serious bone infection, caused by the bacterium streptococcus, but also a candida fungus.

"It was no longer about my return to football," Saunders said. "It was about surviving."

Now, the New York City FC goalkeeper says he is lucky to be alive and to still have his leg. Saunders credits his complete recovery to US Olympic Ski Team doctor and Sport Scientist, Dr. James Stray-Gundersen, and his cutting edge recovery, fitness, and strength protocols - the Anti Gravity Treadmill and KAATSU Blood Flow Moderation Training.

Saunders was looking for anything to get him back in the goal. He had lost significant weight, and more importantly, muscle mass. Saunders met Dr. Stray-Gundersen who elevated his fitness and built his strength with KAATSU, very quickly.

"I had never heard of KAATSU of BFM Training before, but Stray-Gundersen showed me results from his top skiers, and I was all for it. He applied 30 minute KAATSU sessions, 5 days per week and in a matter of a few sessions, I had significant increases in strength, and my quad size increased," said Saunders. "I got that same fatigue feeling in my muscles,
with no heavy weights. It was amazing."

KAATSU was invented by Dr. Yoshiaki Sato in 1966. He experimented for 7 years before he formalised his protocols and built up a following. He was recognized by the Japanese Olympic Committee in 1992 and has since started to work with the Chinese.

But Dr. Sato does not speak English and never traveled overseas so KAATSU remained hidden within Japan.

"I heard about KAATSU from Harvard researchers who had visited Japan," recalls Dr. Stray-Gundersen. "But we never looked into KAATSU until one of our medalists went down with a severe injury a month before the 20114 Olympics."

"We rehabilitated him using KAATSU exclusively, and he raced in 28 days, and we became believers," emphasized Stray-Gundersen.

MLS Defender, Kuami Watson-Siriboe, another ACL tear victim, started the same KAATSU program. The effects were shockingly immediate. "I quickly recovered doing KAATSU 3-point exercises and the KAATSU Cycle," says Watson-Siriboe.

"In all applications, we always assess capillary refill and responses throughout recovery - same as Dr. Sato has done since the 1970s," said Dr. Stray-Gundersen.

"The KAATSU equipment allows me to identify the optimal pressure each time which is critical in safety and effectiveness as we fill normally unused capillaries and engage more muscle fibers - we want to achieve the 'fatigue' in the muscle so that the physiological cascade to produce GH, occurs." "Simply put, you cannot get beneficial results, if you do not use proper protocols, equipment, and safety checks required with blood flow moderation training used with KAATSU. As always, the athlete safety and recovery is our first concern and KAATSU researched system sets th standard," said Dr. Stray-Gundersen.

Saunders said, "I couldn't believe the results at first, but I had faith in Dr. Stray-Gundersen and KAATSU, and I just wanted to get back on track and as fast as the skiers did. I am now stronger, faster and quicker than I was before my injury."

That he did - Josh Saunders NYFC Player of the Month May 2015.
As 75.8 million American Baby Boomers either transition from the end of their careers or are in full or partial retirement, many of them have spent their most recent years raising children, financing college educations, paying for weddings, and culminating their careers. These pressures have played havoc with their fitness levels.

Previously over-stressed, overworked, and under-exercised, the Baby Boomers are now facing much more free time. But with their higher body fat percentages, lowered muscle mass, and lessened aerobic capacities, getting back into shape is not easy. A change of lifestyle and a change in mindset are required. But this is easier said than done.

KAATSU, a revolutionary form of blood flow moderation training developed in Japan, is used daily by hundreds of thousands of individuals over the age of 50 in Japan. “KAATSU can present an easy-to-implement catalyst for individuals over the age of 50 to return to their former selves,” says Paul Grzymkowski, the former president of Gold’s Gym Franchising and now an avid fan of KAATSU. “10,000 Baby Boomers in America will celebrate their 65th birthday every day for the next 2 decades (3,650,000 new Baby Boomers per year). This is a huge market for every fitness professional to consider.”

A 65-year-old man or women sees the rest of their life much differently than they did at the age of 25 or 35. The quality of life is their focus, but it is at this time that their muscles have faded and various ailments have begun.

“We must recondition the 26% of the total U.S. population in innovative ways, using modalities that are self-sustaining and much more low-impact than what we used to do in our youth or even mid-age,” added Grzymkowski. “Heavy barbells and dumbbells are not necessary ideal equipment to serve as a catalyst to whipping Baby Boomers into shape. Aerobics, spinning, and elliptical machines are also not for everyone. We have to look for something even more revolutionary.”

Grzymkowski, a 67-year-old veteran of the fitness industry, has spent his lifetime around barbells, dumbbells, and spinning bikes. But he has substituted the iron of his youth for the pneumatic bands used by his counterparts in Japan. “I have not changed - I love feeling pumped when I exercise. When I feel my biceps bulge or my quads burn, it recalls my strength of former years. But I am doing this and changing my body shape without heavy weights. I am doing it with pneumatic bands and the KAATSU equipment that are used so effectively by senior citizens in Japan and elite athletes around the world. When I do use weights during my KAATSU workout I tend to use light dumbbells or weight plates of no more than 5-pounds.”

KAATSU is a Japanese word that means 'additional pressure' in English.

KAATSU is done with pneumatic bands that are inflated to safe levels by a mobile electronic touch panel device. The bands are a proven means to safely modify the blood flow in the limbs during exercise. This modification leads to pooling of blood in the muscles that leads to significant human growth hormone secretion and a literal tricking of the brain into thinking the body into building muscle.

KAATSU athletes of all ages – from 14 to 104 - and abilities, including Olympians and professional athletes, perform simple exercises to generate a muscle pump: hand clenches and bicep curls with or without light weights or heel raises or leg curls while standing up.
In order to quickly and effectively re-condition with KAATSU after surgery on the lower limbs, KAATSU recommendations are as follows.

**EQUIPMENT**
Use either the KAATSU Master or KAATSU Nano together with the KAATSU Air Bands (both arm and leg bands)

**REGIMEN:**
Includes KAATSU Cycle (preferably on both the arms and legs) + KAATSU 3-point Exercises (first on arms and then on legs) or KAATSU Performance Training (on either arms and/or legs)

**FREQUENCY:**
2-3 times per week minimum, but sometimes more frequent if desired/possible

**KAATSU CYCLE REGIMEN (STANDARD):**
Step 1: Find the your Optimal SKU (e.g., 200 SKU)
Step 2: Do 1-2 sets of the standard KAATSU Cycle (i.e., 8 cycle of 20 seconds on + 5 seconds off)
Step 3: Proceed to either Advanced KAATSU Cycle** or KAATSU 3-point Exercises on arms

**KAATSU CYCLE REGIMEN (ADVANCED)**:
Option 1
Step 1: Find the your Optimal SKU (e.g., 200 SKU)
Step 2: Purposefully increase SKU to a higher pressure level than Optimal (e.g., 260 SKU)
Step 3: Do 1-2 sets of the Advanced KAATSU Cycle at this higher level as possible (i.e., 8 cycle of 20 seconds on + 5 seconds off)
Option 2

Step 1: Find the your Optimal SKU (e.g., 200 SKU)

Step 2: Purposefully increase SKU to a higher pressure level than Optimal (e.g., 260 SKU)

Step 3: Do 1-2 sets of the Advanced KAATSU Cycle for longer at this higher level as possible (i.e., 8 cycle of 40 seconds on + 10 seconds off)

Option 3

Step 1: Find the your Optimal SKU (e.g., 200 SKU)

Step 2: Purposefully increase SKU to a higher pressure level than Optimal (e.g., 260 SKU)

Step 3: Do 1-2 sets of the Advanced KAATSU Cycle for longer at this higher level as possible (i.e., 8 cycle of 60 seconds on + 20 seconds off)

** As you become stronger and more accustomed to KAATSU, your ability to handle higher pressures for longer periods becomes readily apparent, but you and the KAATSU Specialist should always start off conservatively. Your body will acclimate well, but at the beginning, you should always error on the side of lower pressures.

KAATSU 3-POINT EXERCISE FOR THE ARMS:

Step 1: Find your Optimal SKU (e.g., 200 SKU)

Step 2: 3 sets of the hand grips (note: the number of repetitions should decrease with each subsequent set)

Step 3: 3 sets of bicep curls

Step 4: 3 sets of triceps extensions

Step 5: Proceed to KAATSU 3-point Exercise on legs

KAATSU 3-POINT EXERCISES FOR THE LEGS:

Step 1: Find your Optimal SKU (e.g., 200 SKU)

Step 2: 3 sets of the toe curls (note: the number of repetitions should decrease with each subsequent set)

Step 3: 3 sets of heel raises

Step 4: 3 sets of either squats (quarter or full) or leg curls

KAATSU PERFORMANCE TRAINING FOR EITHER ARMS OR LEGS:

Step 1: Find your Optimal SKU (e.g., 200 SKU)

Step 2: Do the preferred activity of the patient (e.g., walking, resistance training, stretching, mobility exercises, rehabilitation)

NOTES:

» The number of repetitions should decrease with each subsequent set.

» Alternatively, if you are walking on a treadmill, the total time should be limited to 20 minutes.

» If you are using your upper body, the total number should be limited to 15 minutes.

» You can elect to do both arms and legs (but not simultaneously) during the same session if you wish.
In order to quickly and effectively pre-condition with KAATSU before surgery on the lower limbs, KAATSU recommendations are as follows:

**EQUIPMENT:**
Use either the KAATSU Master or KAATSU Nano together with the KAATSU Air Bands (both arm and leg bands)

**PREPARATION**
- *Be well-hydrated before starting KAATSU*
- *Always follow KAATSU protocols (i.e., always have good capillary refill within 2 – 3 seconds, no occlusion, no numbness)*
- *Always start with the KAATSU Cycle (i.e., 8 cycles of 20 seconds pressure on + 5 seconds pressure off)*

**Key Points**
- *KAATSU can be done daily, even twice per day during rehabilitation or recovery from injuries*
- *KAATSU should be done on both the arms and legs for the optimal systemic effects, regardless of where the injury is*
- *Use a high Base SKU and the highest Optimal SKU that is safe and falls within the standard KAATSU guidelines*
- *Always begin with at least 2-3 KAATSU Cycles on arms and legs*
- *Do not release the air in the KAATSU Air Bands throughout the entire reconditioning workout (unless, of course, you feel numbness or become lightheaded)*
- *Never have pain in the joint, tendon or bone while doing KAATSU*
- *Always use the correct form in any movements*
- *The rest between sets and between exercises should be no more than 20 seconds maximum*

**PROTOCOLS**

**STEP 1:** Start with the KAATSU Cycle on the arms at an average Base SKU and average Optimal SKU (e.g., if your Optimal SKU is 250 SKU, start with an SKU of 220-230). Do 1 – 2 more KAATSU Cycles on the arms as a warm-up.

**STEP 2:** Set the appropriate Base SKU and Optimal SKU on the arms and do either the KAATSU 3-point Exercises for the arms* or a specific upper body workout with the KAATSU Arm Bands on. If the KAATSU 3-point Exercises are done, do 3 sets each of (1) hand clenches (optionally with hand grips), (2) bicep curls (optionally with light resistance), and (3) triceps extensions (optimally with light resistance) until muscular failure.

**STEP 3:** Remove KAATSU Arm Bands and place KAATSU Leg Bands on to begin the KAATSU Cycle on the legs.

**STEP 4:** Do one normal KAATSU Cycle (i.e., 8 cycles of 20 seconds pressure on + 5 seconds pressure off).

**STEP 5:** Do 3 – 5 modified KAATSU Cycles of 60 seconds pressure on + 20 seconds pressure off at the highest Base SKU and Optimal SKU as possible.

**STEP 6:** Do the KAATSU 3-point Exercises for the legs or 3 sets of (a) heel raises, (b) standing hamstring curls, and (c) non-lock partial extension squats (both one-leg and two-leg if possible), and walking or other recommended movements as recommended by the physical therapist.

**REMINDERS**
- *If you can do over 40 repetitions before reaching failure, then the Base SKU and Optimal SKU are too low. Increase the Base SKU or Optimal SKU so ideally the number of repetitions on the first set is 30 repetitions before failure.*
- *Always breathe throughout the KAATSU exercises and remain well-hydrated.*
- *Always go to muscle failure on each set. On the last set of each exercise, muscular failure should come quickly.*
- *A disturbance of homeostasis will occur and muscular discomfort should come quickly.*
- *Because KAATSU has systemic effects, it is recommended to also do KAATSU on the arms in addition to the legs.*
Bettina grew up in Colorado and received her Bachelor's of Science degree in Kinesiology/Exercise Physiology in 1989. She then moved to Park City, Utah where she attended the Utah College of Massage and became a licensed massage therapist. She attended Pacific University in Oregon and received her Masters in Physical Therapy, with distinction in 1995.

In 1997, she started Columbia Gorge Physical Therapy in Hood River, Oregon where she has gradually grown her business. She is Stott Pilates trained and continues her rehabilitation pilates training through the Stott Training Center in Portland. Bettina is certified in Graston Technique, and is an active member of the Oregon Physical Therapy Association and the American Physical Therapy Association (sections on orthopedic and sports physical therapy).

Over the past 18 years, Bettina has continued to integrate her manual and myofascial release skills and study of movement and sports medicine with her knowledge of Pilates. This integration effectively rehabilitates her patients to a high level of function. She has worked with all levels of athletes including olympic and professional athletes.

She specializes in upper and lower extremity dysfunction/injuries, injury prevention, bio-mechanical assessments related to sports injuries/running/walking, postural retraining/strengthening and Pilates based core stabilization work for patients with spine and extremity pain. Bettina has coached conditioning and fitness classes for middle school and high school teams and finds working with our local youth sports teams to be a very important and rewarding experience.

She is passionate about educating adults and children about the importance of taking care of their "whole" body through exercise and proper nutrition. She finds great satisfaction in empowering her clients to live their best life and reminds her clients often that they "have one shot at this life, so they better get moving."

In 2016, she became a Certified KAATSU Specialist that she has incorporated into her practice at Columbia Gorge Physical Therapy.

Bettina is an outdoor enthusiast and enjoys road and mountain biking, alpine skiing, nordic skiing, kiting, fly fishing, working in her garden, and walking her dog.

http://www.columbiagorgept.com/about-us/staff-profiles/bettina-bardin-sorensen/