KAATSU was invented in 1966 and the KAATSU Cycle was conceived in 1973 by Dr. Yoshiaki Sato. While the Japanese Olympic athletes have been using KAATSU since the 1988 Seoul Olympics, the 2020 Tokyo Olympics will be the real breakout exhibition of KAATSU-utilizing athletes at the Summer Olympic Games in a number of sports, from swimming to track events.

The 2014 Sochi Olympics were the first Games where non-Japanese athletes used KAATSU.

Team sports athletes in soccer, American football, basketball, baseball, water polo, and volleyball, competitive athletes similarly use KAATSU for recovery, rehabilitation, and athletic attributes like speed, stamina, strength and size.

While aging Baby Boomers are the core market for KAATSU, it is elite athletes whose performance are most significantly impacted with KAATSU. At the highest echelon, the difference between Olympic gold and silver can be a matter of tenths of seconds or a few centimeters.

This KAATSU Magazine is all about uses, applications and protocols that are ideal for competitive athletes whether they compete at the Olympics, in professional leagues, at the NCAA collegiate level, against high school athletes, or among military personnel or older masters athletes.

Any and all of these applications can be performed with the next-generation KAATSU Master 2.0 or KAATSU Cycle 2.0 or the first generation KAATSU Nano.

Enjoy.

Steven Munatones
Steven Munatones, CEO & Co-founder
KAATSU Global, Inc.
Huntington Beach, California
U.S.A.
Football or fútbol, speed skating or rowing, leg power and drive are what sometimes separates elite athletes from first and second, from gold and silver.

One example is the very intense KAATSU Training program that Olympic speed skaters used to develop their speed and power in their thighs and hamstrings. This workout was developed for Hiroyasu Shimizu (清水 宏保), a 1998 500m speed skating Olympic champion and 5-time world record holder from Japan. While only 162 cm in height (5'3”), the power and size of his thighs are renowned.

The following 5 basic exercises with KAATSU Air Bands have proven successful:

6 TYPES OF EXERCISES:
1. Squats
2. Leg Curls
3. Leg Lunges
4. Calf Raises
5. Slide Board

KEY POINTS:
* Focus on doing “non-lock exercises” where the knees are never fully extended and the muscles are constantly engaged with the KAATSU Air Bands on.
* Keep the rest period between sets and between exercises to 20 seconds maximum.
* Build the lactate levels to the highest levels possible.
* Do 3-4 sets of each exercise to failure (maximum effort).
* Failure on each set should be reached earlier and earlier (i.e., 24-40 repetitions on the first set in each exercise; >20 reps on second set; >10 reps in his third set; 1-2 reps on fourth set.

**DETAILS:**

1. SQUATS
   Do deep, quick non-lock squats until failure where the knees are kept at less than 90° throughout the 4 sets.

2. LEG CURLS
   Do quickly paced leg curls until failure where the legs were kept at less than 90° throughout the 4 sets.

3. LEG LUNGES
   Do deep walking leg lunges where athlete “walks” forward with (or without) a bar bell resting on the shoulders (or dumb bells in his hands).

4. CALF RAISES
   Do 4 sets of calf raises with weights on the shoulders and toes in a starting position elevated above the heels (i.e., while standing on a small step or a step board) so the calves are worked.

5. SLIDE BOARD
   Skate back and forth on a slide board in a deep squat, occasionally with weights resting on his shoulders.
All exercises are performed after a proper KAATSU Cycle warm-up with the maximum Optimal pressure of 400 SKU on his KAATSU Nano.

Post-lift KAATSU Session (adjunct to team weight training 2-3 times per week):

ARMS: 3 SETS OF EACH EXERCISE
1. Biceps curls to failure--usually with 5 lb dumbbells (important to get to absolute failure on these to maximize the failure signal response early)
2. Tricep extensions/dips--on pull machine or bench (exaggerate running form on the pull machine)
3. Pull-ups/chin-ups--slow on the way down, fast on the way up (5-10 per set is good)

4. Push-ups--go for highest number of repetitions on the first set in order to cause a huge failure signal (important to maintain proper form and not let core drop when reaching fatigue). Once proper form is lost, the set is over. Also important--the push-ups are the final exercise so really have to push.

LEGS: 3 SETS OF EACH EXERCISE
1. Squats--use barbell with maximum 50 additional lbs (like bicep curls, it is important to go to complete fatigue to get early failure signal). On the last set, I do single-leg squats when my legs are already tired so I can focus on my form and specific areas I want to improve.
2. Single leg RDLs/hamstring curls--focus on form, use maximum of 50 lbs (important: do not go to complete failure as this is very hard to do with RDLs, instead go for 10-15 repetitions per leg per set)
3. Band walks--side, forward, and back (use elastic resistance band at ankles and get in squatting position--the lower you go, the harder it is--do 15 each way before my legs feels very, very pumped
4. Lunge-to-step-up--with or without weight (use bench and do one reverse lunge into a step-up)
important to be explosive on the way up, stable and slow on the way down

5. Split-jumps/sideways-bounding/box jumps/ladder work--these are different options for the last leg exercise (utilizes cardio as well as muscular endurance) important to go to complete failure on these--similar to push-ups for arm training

6. Abdominal routine--do the ab roller forward-side-side, but there are many options (number of repetitions are between 10-20 per set depending on the exercise)

Post-running routine (adjunct to running workout):

ARMS:
Do not do arms on this day to avoid muscle hypertrophy in upper body, but can do variations of the above if necessary.

LEGS: 3 SETS OF EACH EXERCISE
1. Squats--see above (do second and third set single leg to isolate muscle worked during running) also use less weight on this day

2. Ladders--perform 10 different ladder exercises within a 30-second period with 20 seconds rest (do

3x30 seconds at very high tempo)

3. Band walks--see above

4. Walking lunges with weight (30 lbs maximum)--do 10-15 repetitions per leg or until failure

5. Abdominal routine--see above

Pre-/during-/post-soccer training routine: ALL LEGS

Pre-Training: KAATSU Cycle: juggling/passing/dribbling at high pressure (usually 5-10 minutes only)

During Training: inflate at sub-optimal pressure (usually 30-50 SKUs below optimal)--perform different drills incorporating 1) fast feet movement with/without the ball 2) passing accuracy 3) shooting--Be creative.

All should be done within a 20-minute window, with rest in between each set, but not your typical “exercise-rest” KAATSU protocol. Important to really focus on form and perform things fast, but under control.

Post-Training: After a hard session and for recovery: KAATSU Cycle at high pressure-heel-toe exercises on first two cycles, one set of squats on the third cycle, and then actively stretching areas of discomfort during cycles.
The 22-year-old powerlifter from Germany set a new national junior deadlift record in November 2015. The 94 kg powerlifter hoisted 307.5 kg.

Five months later in March 2016, Mavrici increased his deadlift performance to 320 kg while shedding 2 kg of body weight. His improvement was credited to his use of KAATSU training.

But his improvement was not limited to his deadlift. During the same period, he also improved his squat best from 275 kg to 300 kg.

His key?

Mavrici uses a KAATSU Nano to recover from his strenuous competitions.

“After a deloading period with KAATSU Training, he comes back more refreshed and stronger because KAATSU does not create muscle damage,” explained Robert Heiduk.

“KAATSU leads to high levels of muscle activation. It’s very good at inducing hypertrophy with potential in many different settings ranging from rehabilitation and regular exercise to sport specific training.”
Spreading KAATSU In Germany With Robert Heiduk
The Greatest Olympian of All Time, Michael Phelps, has drawn a lot of attention to the ancient Chinese art of cupping during his continued gold-medal run at the 2016 Rio Olympic Games.

Phelps, along with other American Olympians like 12-time medalist Natalie Coughlin and actresses like Jennifer Aniston, Gwyneth Paltrow and Jessica Simpson, have been seen with several visible red round marks on their body.

Cupping is used for recovery and to relieve pain. It is also used to treat pain, shingles, acne and breathing difficulties.

Practitioners of cupping use small glass cups that are placed over the skin and then a vacuum is induced inside a cup. The suction pulls the skin up into the cup that breaks the capillaries and causes the blood to pool and stagnate. This creates a bruise and leaves circular spots on the skin.

Cupping is commonly used among athletes because they want to stimulate blood flow in order to help muscles heal more effectively and quickly.

But physicians and physiologists know that a bruise is a blood clot. But does clotted blood really lead to improved blood flow?

Improved blood flow or not may not matter to Olympic athletes if the placebo effects...
of cupping provide them with a psychological advantage. This positive mindset may be significant enough to provide them a 0.04 second boost – or the difference between Phelps’ gold medal performance in the 200-meter butterfly and the time of Masato Sakai of Japan, the silver medalist.

But there is an alternative to cupping, a scientifically proven, effective, and safe way to improve blood flow and enhance recovery from strenuous exercise, either in competition or in training.

KAATSU.

KAATSU, or generically described a blood flow moderation exercise, was invented in Japan in 1966 by Dr. Yoshiaki Sato. After three decades of meticulous testing with people ranging from 4 to 104 years and years of research, athletes in 19 countries have discovered what is explained in over 100 peer-review published papers. KAATSU is now used by athletes and teams in the NFL, NBA, NHL and Major League Baseball as well as Olympic swimmers, runners, triathletes, judoka, rowers, wrestlers, basketball players and rugby players from the United States, Japan, Brazil and China, as well as countries ranging from Hungary to Tunisia. It is also used by NASA, American colleges from West Point to the University of Missouri, and in hospitals and clinics from the University of Tokyo Hospital to the Albert Einstein Hospital in São Paolo.

KAATSU equipment consists of a portable handheld unit that carefully monitors the external compression of pneumatic bands placed on the upper arms and upper legs.

These pneumatic KAATSU bands serve to safely reduce venous flow in the limbs, thus leading to an effective pooling of blood in the arms and legs. Through stretching or any form of movement – either strenuous exercise or physical therapy – with the KAATSU Air Bands on, the pooling of blood helps expand the veins and capillaries. Additionally, the KAATSU Cycle function effectively flushes out lactic acid in the muscles.
After 5-10 minutes of KAATSU Cycle, the athletes feel rejuvenated because the lactic acid is not only effectively removed from the muscles, but also the expansion of the vascular walls leads to an increased elasticity of the veins and capillaries.

There is also a concurrent release of growth hormones and nitric oxide caused by this blood pooling that aids recovery. This biochemical reaction is a natural effect of blood pooling that has positive systemic effects on the body. The hormones are transported throughout the body via the vascular system. When these hormones reach muscle cells that are under stress, cell receptors in these cells interact as the body is designed to do.

Therefore, KAATSU is a scientifically proven modality that has natural systemic effects on the body. These are not only more healthful and effective than localized cupping, but it also leads to a natural hormonal release and improved elasticity of the vascular system.

**KAATSU versus Cupping, Advantages versus Disadvantages:**

* Cupping creates bruising in a localized area. KAATSU leads to a natural hormonal response.
* Cupping leads to visible red spots on the body. KAATSU leaves no visible marks on the body.
* Cupping requires an experienced practitioner. KAATSU can be done anywhere anytime by anyone who follows the standardized KAATSU protocols.

Swimming World Magazine also wrote about cupping by Olympic swimmers here.
Ice hockey players or those who enjoy ice skating for fitness or performance can use the pneumatic KAATSU Air Bands monitored by the KAATSU Master or KAATSU Nano and inflated to their Optimal SKU (pressure).

They can do a variety of exercises. We recommend that they do 3-4 sets of each exercise that is performed to either muscular or technical failure. If the Optimal SKU is set correctly, the duration (or repetitions) of each set should be reduced. That is, if set #1 is 1 minute in duration (or 30-40 repetitions), then rest for a maximum of 20 seconds and continue with set #2. KAATSU users should reach their muscular or technical failure before 1 minute or 30-40 repetition in Set #2.

Rest should be no more than 20 seconds before set #3 begins. In set #3, KAATSU users should reach their muscular or technical failure in a shorter time duration or fewer repetitions in Set #2.
KAATSU FOR BASEBALL PLAYERS

Teenage baseball players can use KAATSU in three primary ways that have been tested and proven by professional baseball players:

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<tr>
<td><strong>Athletic Performance</strong></td>
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<tr>
<td>1. For throwing: warm-up with KAATSU Cycle and throw as normal with KAATSU Optimal SKU Pressure and the Arm Bands untethered.</td>
<td>3. For running: warm-up with KAATSU Cycle and do base running as normal with KAATSU Optimal SKU Pressure with the Leg Bands untethered.</td>
<td>with the Arm or Leg Bands untethered.</td>
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<tr>
<td>2. For pitching: warm-up with KAATSU Cycle and pitch as normal with KAATSU Optimal SKU Pressure and the Arm or Leg Bands untethered.</td>
<td>4. For batting: warm-up with KAATSU Cycle and take practice swings (i.e., not at home base with a pitcher) with KAATSU Optimal SKU Pressure</td>
<td>* Avoid fielding or batting to the KAATSU Arm or Leg Bands on. We want to avoid any possible unintended injuries.</td>
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**Injury Rehabilitation**

Use KAATSU Cycle (Cycle 20 or Cycle 60) to augment traditional rehabilitation therapy and to avoid muscle atrophy.

**Recovery**

1. Post-game pitcher: ice + 3-5 KAATSU Cycles on arms as an ideal post-game recovery mode to reduce inflammation.
2. Post-workout field players: 3-5 KAATSU Cycles after weight-running or a particularly long and vigorous workout.
3. Travel: 3-5 KAATSU Cycles on arms and/or legs after long trips or overnight travel as desired.

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**TOP 5 BENEFITS**

1. KAATSU can strengthen a pitcher’s motion and improve their throwing technique, accuracy, and distance.
2. Can improve a batter’s overall strength and speed by allowing them to train their exact movements and form.
3. Can be used for recovery post-game by pitchers to augment icing.
4. Enables muscles to achieve maximum effort without the use of heavy weights or additional equipment.
5. Stimulates the secretion of a significant amount of human growth hormone within a short amount of time.
KAATSU Performance Training
For Football Players

Fundamentally, KAATSU applications are separated into three general areas. KAATSU protocols differ slightly for (1) Athletic Performance, (2) Rehabilitation, and (3) Recovery and Wellness.

**Athletic Performance**
KAATSU is used in different ways to develop speed or stamina or strength or muscle size or to lose weight or improve BMI. Each of these goals has slightly different protocols.

**Rehabilitation**
KAATSU is used together with basic physical therapy for people with broken bones, torn ligaments or tendons, or pulled muscles - and, very importantly, to eliminate muscle atrophy during rehabilitation and recovery. These protocols are specific with different applications of pressure and can include the CYCLE 20 or CYCLE 60.

**Recovery & Wellness**
KAATSU is used for recovery from injuries, jet lag and the effects of sedentary living.

When trainers and coaches focus on KAATSU Performance Training, they make sure the athlete is well-hydrated and start with 2-3 KAATSU Cycles. The pressure on for 20 seconds followed by pressure off for 5 seconds in sequentially higher pressures enables the athlete’s capillaries and veins to become ‘warmed up’ (more elastic) and ready for more intense exercise.

The KAATSU Air Bands are then inflated to the athlete’s Optimal SKU pressure. If this is the first experience with KAATSU Performance Training, the athlete should start off conservatively (i.e., low pressure). Over time, they can increase their Optimal SKU pressure as their bodies acclimate to KAATSU.
After the Optimal SKU pressure is reached, the athlete can untether (disconnect) the KAATSU Air Bands from the KAATSU unit and the athlete is free to move around the field. They should start off slowly and be comfortable, always checking their Capillary Refill Time.

Quarterbacks can throw, linemen can come off the line (like sumo wrestlers do), receivers can run routes, and punters can stretch and kick.

The athletes can do 5-10 repetitions of their motions (passes, routes, blocks or kicks). This will build up lactic acid fairly quickly in the muscles and their performance will gradually and slightly degenerate - so quarterbacks will throw with less of a zip, linemen and receivers will get very winded, and kickers will not be able to extend as normal). This is helping the muscle fibers get faster and stronger despite the athlete’s increasing fatigue and decreasing performance.

Then take off the KAATSU Air Bands (off either their arms or legs - never use both the arm and leg bands together). The coaches and trainers should allow the athlete to rest and hydrate a bit. Linemen and receivers will definitely need to catch their breath. Now the athlete should repeat the same movements (i.e., throws, blocks, routes, kicks) without the KAATSU Air Bands on. Their tactile feel should improve; their speed of movement should feel more fluid. Some athletes describe this feeling as being ‘lighter’.

KAATSU Performance Training can be done daily and can be limited to less than 10 minutes (i.e., without a big impact to the total number of hours they are practicing).

Strength training exercises can even be done out on the field - without the need to head back to the weight room:
KAATSU PROTOCOLS FOR ACHILLES TENDON INJURIES

The Achilles tendon is a tough band of fibrous tissue that connects the calf muscles to the heel bone. When the tendon is strained, torn or repaired due to surgery, the following KAATSU protocols are recommended:

GENERAL GUIDELINES
» Always remain well hydrated before and during the entire KAATSU session.
» Your skin should turn pink or a beefy red or even a hint of purple. This indicates engorgement of blood in your arms or legs.
» Your skin should not turn white, gray or blue. This indicates the KAATSU Air Bands are too tight and the bands are serving as a tourniquet. KAATSU is not occlusion training. There must be sufficient and regular arterial flow (i.e., blood flow from the torso to the limbs) and only a modified venous flow (i.e., blood flow from the limbs back to the torso) when doing KAATSU.
» Continue to follow the recommendations of your medical professional and perform the movements as recommended by your physical therapist.
» You can use the KAATSU Air Bands while doing standard physical therapy.
» You can do KAATSU twice per day which is especially effective if one session is in the morning hours and another session is closer to bedtime.
» Keep rest short between sets and exercises while doing KAATSU. Rest 20-30 seconds between sets or 60 seconds between
different exercises. This can be modified as necessary.
» Select physical therapy movements, exercises, or loads that allow you to perform a good number of repetitions (e.g., 30–40 repetitions in first set, 20-30 repetitions in the second set, fewer than 15 repetitions in the third set).
» Do at least 3 sets of each exercise or movement and then move onto a different exercise.
» Try to reach maximum effort (or go to muscular or technical failure) within each set.
» Always start with up to 15 minutes of KAATSU Cycle on your arms and then do up to 20 minutes of KAATSU Cycle on your legs.
» Always have your Capillary Refill Time fall within 3 seconds with no occlusion or lightheadedness, and no paleness or no numbness in your limbs.
» Immediately release and remove KAATSU Air Bands if there is any numbness or lightheadedness, or the skin color becomes pale or white. Lie down with the legs elevated if necessary.
» Never simultaneously put on or use the KAATSU Air Bands on your arms and legs.
» Do not exceed 15 minutes of KAATSU on your arms or 20 minutes on your legs.
» Frequently check your Capillary Refill Time and confirm that the color of your limbs remains either pink or beefy red.
» Your veins may be distended (i.e., popping out) in your forearms during KAATSU.
» You may feel a slight tingling in your fingers or toes during KAATSU. This indicates that the small capillaries of your hands are fully engorged.
» KAATSU should be implemented with the understanding of your physician and physical therapist.
» Higher SKU levels are usually tolerable on your legs compared to your arms in most cases.

KAATSU Protocols for Muscle, Bone, Ligament, and Tendon Recovery
» Do 3-5 KAATSU Cycles ("Cycle 20") at your appropriate Base SKU and Optimal SKU, first on your arms (i.e., 8 cycles of 20 seconds on + 5 seconds off).
» Then do 4-6 KAATSU Cycles at your appropriate Base SKU and Optimal SKU on your legs.
» You can repeat this twice per day. If you stimulate a hormonal response towards bedtime, your speed of recovery will be enhanced.

» Additionally, you can also do “Cycle 60” at your appropriate Base SKU and Optimal SKU on your injured leg. That is, apply the KAATSU Air Band only on the leg that is injured or is recovering.
  » The KAATSU Cycle 60 mode is cycles of 60 seconds on followed by 20 seconds off at the Optimal SKU.
» You can do muscle contractions or simple motions during the KAATSU Cycle 20 and Cycle 60 as desired.
Most personal trainers, strength and conditioning coaches, and exercise physiologists believe that proper muscle building requires regular lifting of weights and other resistance exercises.

The conventional wisdom is that the heavier the weight and/or the more repetitions or time in the gym, the larger and faster muscles will grow.

Standard thought includes that part of that muscle-building process - at any age or with either gender - requires the experience of DMOS (Delayed Muscle Onset Soreness) where the muscle fibers are damaged while weight lifting, and thus leading to the secretion of HGH (Human Growth Hormone) that results in muscle recovery, growth and size.
Practically, this means that if you are bench pressing 50 kg in 3 sets of 12 repetitions, and then gradually increase the weight to 55 kg in 3 sets of 12 repetitions, then not only are you psychologically satisfied with your performance, but you are also getting stronger and most probably bigger in size.

And usually sore for a while after every weight training session.

Figuratively speaking, a strength and conditioning coach wants their athletes to lift more weights over more repetitions.

Let’s imagine that those weights are rocks. Let’s place those rocks in a bucket and ask the athlete to lift those imaginary buckets.

If the coach wants to increase their weight of that bucket, he will add another rock. But at some point, the bucket will be filled and no more rocks can be added.

But what if those rocks were replaced by sand? Rocks are clearly heavier than sand. But, if we filled the bucket with sand - tiny particles of little rocks - the overall weight of the sand-filled bucket will be even greater than a bucket filled with larger, heavier rocks.

Now imagine the coach wants to increase the weight of the bucket for his athlete. He cannot add another rock, but he can add some additional sand.

The sand enables micro increases of weight in a way that rocks cannot. This can enable the coach to help his athlete very gradually and very minutely increase the weight and performance gains.

Now figuratively imagine, a clever coach used powder instead of sand in his imaginary weight training bucket. Powder is obviously lighter than sand and significantly lighter than rocks. But powder enables the coach to very precisely and gradually increase the weight and strength of his athlete.

Essentially, the sand and the powder enables a more precise means to gradually increase the strength and performance of an athlete.

KAATSU is very similar to this analogy of using rocks versus sand versus powder.

KAATSU equipment enables strength and conditioning coaches to very precisely and MUCH more frequently increase the strength and size of their athletes in addition to their speed and stamina.

The preciseness and specificity that is enabled by KAATSU equipment is unparalleled. With KAATSU equipment, one pressure point increase is the figurative and literal amount that is equivalent to a single grain of sand or tiny bits of powder. For elite athletes who seek victory by being only incrementally faster, better, and stronger than their opponents, KAATSU - or the equivalent of sand or powder - can be the incremental difference.

Likewise, for a stroke victim or a paraplegic who is striving to make only slight incremental improvements in their movements or strength, KAATSU enables the tiny increases in their Quality of Life. Performed regularly and ideally daily for less than 15 minutes per day, these incremental increases in performance and in the Quality of Life makes significant changes in the lives of healthy athletes and injured individuals.
Many KAATSU users, including those asked to travel internationally and who must cross several time zones, use their KAATSU equipment following the standard KAATSU protocols to reduce the effects of jet lag and battle insomnia.

These are the important points regarding KAATSU use before, during and after airplane travel:

» Be very well-hydrated before doing KAATSU Cycles in the airplane or before takeoff at the airport in order to help reduce your jet lag.
» Do KAATSU Cycles in your hotel room before going to bed on your first few evenings in your new location.
» Always focus on doing KAATSU Cycles, starting in lower pressures and then gradually increasing.
» You can be conservative with your pressure. The effects will still be evident despite a lower-than-normal pressure.
» Rest at least 30 seconds between each set and each exercise.
» There is no need to go to failure with these Jet Lag & Insomnia protocols; the goal is to become relaxed.
» Always follow the standard KAATSU safety protocols (e.g., always have Capillary Refill Time faster than 2-3 seconds with no occlusion and no numbness in your feet or legs, and a deeper/pinker/redder skin color than normal in your limbs).
» Ideally, do your KAATSU Cycles before you board the airplane.

Upper Body Jet Lag Exercises:
1. Place the KAATSU Air Bands on your upper arms.
2. Do 2-4 KAATSU Cycles, ideally within 30-60 minutes of boarding the airplane.
3. You can do all or any the following KAATSU exercises while sitting in your seat during flight:
   * Forward Shoulder Rolls
   * Backward Shoulder Rolls
   * Head Rotations
   * Tricep Muscle Stretches
   * Deltoid Muscle Stretches
* Arm Rest Press Downs
* Isometric Contractions

4. Do 20-30 Forward Shoulder Rolls in a steady motion while your KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while your KAATSU Air Bands are deflated. Repeat as desired.

5. Do 20-30 Backward Shoulder Rolls in a steady motion while your KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while your KAATSU Air Bands are deflated. Repeat as desired.

6. Slowly roll the head forwards and backwards. Then slowly roll your head to the left and then to the right. Then slowly roll your head in a clockwise direction and then in a counterclockwise direction while your KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while the KAATSU Air Bands are deflated in the KAATSU Cycle mode.

7. Stretch your triceps muscles on your left and right arms while your KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while the KAATSU Air Bands are deflated in the KAATSU Cycle mode.

8. Stretch your deltoid muscles on left and right shoulders while your KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while the KAATSU Air Bands are deflated in the KAATSU Cycle mode.

9. Do isometric exercises like placing both hands on your arm rests and press down Cycle mode. Breathe deeply. Relax while the KAATSU Air Bands are deflated in the KAATSU Cycle mode.

Note: Skip this exercise if rolling your head forwards, backwards, left, right, clockwise or counterclockwise causes dizziness.
for a few seconds while contracting your muscles. Rest and relax, then repeat.

10. Place the palms of your hands together and push your hands together for a few seconds. Then, rest, relax and repeat.

11. Grasp the fingers of your hands and pull your hands apart for a few seconds. Then rest, relax and repeat.

12. Stretch your upper body or torso as you desire and are able.

**Lower Body Jet Lag Exercises:**
Note: Doing KAATSU on your legs is much easier in a business or first class seat and most difficult - or frankly impossible - while in the middle seat in economy class.

1. Place the KAATSU Air Bands on your upper legs.

2. Do 2-4 KAATSU Cycles, ideally within 30-60 minutes of boarding the airplane.

3. You can do all or any the following KAATSU exercises while sitting in your seat during flight:
   - * Heel Raises
   - * Leg Extensions
   - * Inward Leg Squeezes
   - * Outward Leg Squeezes
   - * Isometric Contractions

4. Slowly do 10-20 Heel Raises in a steady motion while your KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while your KAATSU Air Bands are deflated. Repeat as desired.

5. Slowly do 10-15 Leg Extensions in a steady motion while your KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while your KAATSU Air Bands are deflated. Repeat as desired.

6. Place your hands on your inner thighs and slowly push outwards as you push your legs inwards against the force of your hands while the KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while the KAATSU Air Bands are deflated. Repeat the Inward Leg Squeezes as desired.

7. Place your hands on your outer thighs and slowly push inwards as you push your legs outwards against the force of your hands while the KAATSU Air Bands are inflated in the KAATSU Cycle mode. Breathe deeply. Relax while the KAATSU Air Bands are deflated. Repeat the Outward Leg Squeezes as desired.

8. Repeatedly contract and then relax your upper leg muscles (quadriceps and hamstrings) while the KAATSU Air Bands are inflated in the KAATSU Cycle mode.

Some of these exercises are demonstrated below. These same exercises can be done in the airport, airport lounge or at your office or home before your flight. They also work to relieve stress and get some exercise during the day when you are sitting and being sedentary all day long.
The Masimo MightySat™ Fingertip Pulse Oximeter can be used with the KAATSU Master 2.0 and KAATSU Cycle 2.0 for a wide variety of purposes.

“One of the best physiological monitoring devices that I have ever used is the Bluetooth-enabled Masimo MightySat™ Fingertip Pulse Oximeter,” said Steven Munatones.

“I can simultaneously track and archive the oxygen level in my blood, my pulse, the number of breaths per minute, a measure to understand how well hydrated that I am, and other data points that indicate changes in blood circulation and heart rate recovery.

The Masimo is used with athletes of all abilities to help them understand their bodies better and help them improve and with individuals of all ages who may be recovering from injuries or simply want to improve their level of wellness.”

So how can you combine the use of the Masimo MightySat™ Fingertip Pulse Oximeter with the KAATSU Cycle 2.0 and other KAATSU equipment including the KAATSU Master 2.0?

Six specific parameters that can be tracked noninvasively while simultaneously using either the KAATSU Master 2.0 and KAATSU Cycle 2.0 to obtain a wide variety of physiological real-time data:

“It is best to put the Masimo MightySat™ on your non-dominant ring finger,” explains Munatones. “So if you are right-handed, put the MightySat™ on your ring finger (i.e., the fourth finger of your hand, located between your little finger and your middle finger).

Also, it is best to sit down comfortably while you are measuring these parameters while using the Masimo MightySat™.

1. SpO2 or Oxygen Saturation is the oxygen level in your blood that indicates changes due to your heart or lung function, oxygen use by your body, or altitude. It is a percentage of hemoglobin in the blood...
that is saturated with oxygen. The unit of measure is percentage (%).

“In layman’s terms, you want to see this SpO2 percentage increase over time,” explains Munatones. “The higher the percentage of Oxygen Saturation, the better. That is, ideally you want 100% SpO2, but the important goal is to see increases in your percentage, both over time and before and after using KAATSU. So, for example, if your SpO2 is at 96% or 97% before you start KAATSU, it is ideal to see your SpO2 to slightly increase to 97% or 98% after a KAATSU session. This indicates a healthful improvement.”

2. PR or Pulse Rate is the number of your heart pulses per minute that indicates your overall fitness or exertion levels at any time. The unit of measure is beats per minute (bpm).

“In layman’s terms, you want to see this pulse rate - or the number of heart pulses per minute decrease over time, during any specific exercise or while you are simply sitting at rest,” explains Munatones. “In general, the lower your Pulse Rate during exercise or rest, the better. So, for example, if your heart rate is 85 as you are doing a set of squats, it would be great to see this pulse rate fall to 75-80 beats per minute over time, an indication that your heart and cardiovascular fitness level are improving.”

3. RRp™ or Respiration Rate is the number of breaths per minute that indicates how well your heart and lungs function or how quickly you recover from exercise. It is a measurement of respiration rate based on changes in the plethysmographic waveform. The unit of measure is respirations per minute (RPM).

“In layman’s terms, you want to see your Respiration Rate to decrease over time, during any specific exercise or while you are simply sitting at rest,” explains Munatones. “In general, the lower your Respiration Rate during exercise or rest, the better. So, for example, if your Respiration Rate is 18 as just sit at rest, it would be great to see this rate fall to 12-15 breaths per minute over time, an indication that your breathing efficiency is improving.”

4. PVi® or Plethysmograph Variability Index is the variation in perfusion index over your breathing cycle, which may indicate changes in hydration, breathing effort, perfusion, or other factors. The Plethysmographic Waveform displays your real-time pulse pressure waveform.

“In layman’s terms, your PVi® is a bit more difficult to track and understand its actual implications of health, but it is one indication of the level of hydration in your thoracic cavity (or chest cavity). To properly measure your PVi®, you should lay down relaxed in a horizontal position and take it at the same time of the day in the same position,” explains Munatones.

5. PI or Perfusion Index is the strength of your blood flow to your finger that indicates changes in blood circulation. It is the ratio of the pulsatile blood flow to the non-pulsatile blood in peripheral tissue used to measure peripheral perfusion. The Perfusion Index values ranges from 0.02% for a very weak pulse to 20% for an extremely strong pulse.

“In layman’s terms, you want to see your Perfusion Index decrease as you do KAATSU, doing any type of exercise or while you are simply sitting at rest,” explains Munatones. “In general, a
decrease up to 50% of your first reading is an excellent indication that you are reaching your Optimal SKU (Standard KAATSU Unit). As the Perfusion Index falls from, let’s say 5% to 2%, this means you are nearing the peak tightening pressure of your KAATSU Air Bands. So, for example, as you increase the pressure from Group Low to Group Medium to Group High and Pro Low levels, the Perfusion Index should gradually fall. There will always be a lot of fluctuation in this Index, but the most important data to understand is its downward trend to up to 50% of the level in which you started.”

6. The Heart Rate Recovery Calculator can track the heart’s ability to return to normal levels after vigorous physical activity. Fitness level and proper heart function are measured by the recovery phase. A heart that is fit will recover at a quicker rate than a heart that is not accustomed to regular exercise. The first minute of recovery is the most crucial. After exercise, your heart rate experiences an abrupt drop during the first minute. This recovery period can indicate cardiovascular fitness level.

“In layman’s terms, a lower recovery heart rate should follow vigorous exercise, doing any type of exercise, either comfortable exercise or vigorous exercise ,” explains Munatones. “The Masimo’s Heart Rate Recovery Calculator is used by putting on the MightySat™ on one of your fingers right after a bout of exercise and then using your Masimo mobile app on your smartphone. After 60 seconds, you will receive your percentage score.

In general, a higher percentage score is better, meaning that your heart is able to recover better, faster after a bout of exercise or KAATSU. So, for example, as you finish your exercise and you receive a higher percentage 60 seconds later, this means your heart is getting stronger and is able to recover faster. This is an excellent indication of improved health.”

For more information about the Masimo MightySat™ Fingertip Pulse Oximeter, visit here or listen to world champion Michael Andrew above.
KAATSU FOR GROIN PULLS, TEARS & STRAINS

An 80-year-old woman experienced a painful groin strain and had trouble walking. She elected to follow a standard KAATSU protocol for such injuries. She explains the outcome of her KAATSU session.

The standard protocol for muscle injuries, including groin pulls and strains, is RICE (Rest + Ice + Compression + Elevation). Depending on the severity of the injury, individuals may want or need additional treatments to speed healing that can include: physical therapy, massage, heat and stretching, and electrotherapy.

But in the KAATSU community, KAATSU can play a significant role in healing and speeding up recovery from groin injuries (i.e., an injury or tear to the adductor (inner side) muscles of the thigh).

Whether a groin strain is experienced by a water polo player or an older adult, KAATSU is a very effective modality for significantly reducing the pain factor during recovery. For optimal results, KAATSU can be used as follows:
KEY POINTS
» Do KAATSU Cycles on all four limbs for optimal systemic (overall) results.
» Do KAATSU Cycles at least once per day, but ideally twice per day. Optimally, do KAATSU Cycles once in the morning and once again within an hour of going to bed. If there is time, doing KAATSU Cycles in the middle of the day can also be added—all of this can be done at your home, office or during travel.
» Do KAATSU only on the injured limb for the first few (or several) KAATSU Cycles for the first days. Later, you can simultaneously and use place the KAATSU Air Bands on both limbs (both healthy and injured limbs).
» During each KAATSU session, first do KAATSU Cycles on your arms. Then proceed with KAATSU Cycles on your legs.
» Always be very well-hydrated when you do KAATSU. Well-hydrated means your urine is clear or nearly clear.
» Consult with your personal physician before starting KAATSU, especially if you think you may have a Grade 3 strain that may need surgery to repair the torn muscle or tendon.

Note: Even if the first or second KAATSU Cycles do not feel tight enough, it is perfectly acceptable to start at a low SKU pressure. This will help warm-up your capillaries and prepare them for higher and more effective SKU levels.

4. Each KAATSU Cycle on the KAATSU Nano includes 8 repetitions of 20 seconds of pressure followed by 5 seconds of no pressure in sequentially increasing pressures (e.g., 100 SKU on the first repetition, 110 SKU on the second repetition, 120 SKU on the third repetition, etc. to the 8th and last repetition).
   Note 1: on the KAATSU Wearables and KAATSU Cycle 2.0 units, there are 8 repetitions of 30 seconds followed by 5 seconds on no pressure.
   Note 2: on the KAATSU Master 2.0, there are five standard SKU Levels and one customizable SKU Level.

5. Do 3-6 of these KAATSU Cycles on your arms. This will take 9-18 minutes total. These are called Cycle 20 (indicating 20 seconds of pressure) or Cycle 30 indicating 30 seconds of pressure).

6. During these KAATSU Cycles, you can do standard physical therapy movements.
   » Note 1: You can also do isometric exercises or simply contract your arm muscles in the positive and negative direction during exercise.
   » Note 2: You can also do the KAATSU 3-Point Arm Exercises (i.e., Hand Clenches if possible, followed by Biceps Curls, and then Triceps Extensions).

7. After the first 2-3 days, you can add longer KAATSU Cycles. This is called Cycle 60 (i.e., 60 seconds of pressure on followed by 20 seconds of pressure off). In order to do Cycle 60, go to the KAATSU Training mode and manually input 1 minute (60 seconds) and select an appropriate SKU level (e.g., 250 SKU for 60 seconds).

ARM PROTOCOLS
1. Manually tighten your KAATSU Air Bands on your arms to the appropriate Base SKU (pressure).
2. Inflate the KAATSU Air Bands on your arms to your personalized Optimal SKU.
3. Start with a conservative (i.e., low) SKU on the first KAATSU Cycle. Then proceed with higher and higher SKU levels on the next several subsequent KAATSU Cycles. For example, do 100 SKU for the first KAATSU Cycle, then 150 SKU on the second KAATSU Cycle, then 200 SKU on the third KAATSU Cycle, etc.
8. Constantly confirm your CRT (Capillary Refill Time) on the palms of the hands and make sure your CRT is faster than 3 seconds. Your palms should be pink or even a beefy red color. There should be significant blood pooling in your arms with your veins distended.

   Note 1: Never occlude blood flow to your arms. KAATSU Air Bands are not a tourniquet. Tourniquet or blood pressure cuffs keep blood out of your arms by restricting arterial flow. KAATSU Air Bands function as the opposite of tourniquets and blood pressure cuffs. KAATSU Air Bands modify the venous flow - or blood flow from your limbs back to your torso.

   Note 2: Never feel numbness while doing KAATSU or allow your hands or arms to turn white, gray or blue. In these cases, immediately release the pressure and take off the KAATSU Air Bands.

   Note 3: There should ALWAYS be a pink color or a beefy red color in your hands and arms when doing Cycle 20 or Cycle 60. This indicates blood pooling in the limbs, bringing fresh blood to the capillaries of your entire arm.

9. Remove the KAATSU Air Bands on your arms and rehydrate. Then apply the KAATSU Air Bands on your legs.

**LEG PROTOCOLS**

1. Manually tighten the KAATSU Air Bands on your legs to the appropriate Base SKU (pressure). If you feel uncomfortable placing the leg band on your injured side, simply place the bands on your leg/side that is not injured.

2. Inflate the KAATSU Air Bands on your leg(s) to your personalized Optimal SKU.

3. Start with a conservative (i.e., low) SKU on the first KAATSU Cycle. Then proceed with higher and higher SKU levels on the next several subsequent KAATSU Cycles. For example, do 150 SKU for the first KAATSU Cycle, then 200 SKU on the second KAATSU Cycle, then 250 SKU on the third KAATSU Cycle, etc.

   Note: Even if the first or second KAATSU Cycles do not feel tight enough, it is perfectly acceptable to start at a low SKU pressure. This will help warm-up your capillaries and prepare them for higher and more effective SKU levels.

4. Do 3-6 of these KAATSU Cycles on your leg(s). This will take 9-18 minutes total.

5. During these KAATSU Cycles, you can do standard physical therapy movements.

   Note 1: You can also do isometric exercises or contract your leg muscles in the positive and negative direction during exercise.

   Note 2: You can also do the Standard KAATSU 3-Point Leg Exercises (i.e., Toe curls if possible, followed by Toe Raises if possible, and then Leg Curls).

   Note 3: You can alternatively do the Advanced KAATSU 3-Point Leg Exercises (i.e., Heel Raises if possible, followed by Standing Leg Curls and then Non-Lock Quarter Squats), if you feel comfortable doing so.

   Note 4: You can walk comfortably inside or outside or steadingly on a treadmill.

6. After the first 2-3 days, you can add longer KAATSU Cycles. This is called Cycle 60 (i.e., 60 seconds of pressure on followed by 20 seconds of pressure off). In order to do Cycle 60, go to the KAATSU Training mode and manually input 1 minute (60 seconds) and select an appropriate SKU level (e.g., 250 SKU for 60 seconds).

7. Constantly confirm your CRT (Capillary Refill Time) on the quadriceps above your knees or near your ankles on your calves. Make sure your CRT remains faster than 3 seconds. Your feet and legs should be pink or even a beefy red color. There should be significant blood pooling in your legs with your veins distended, particularly visible in your feet.

   Note 1: Never occlude blood flow to your legs.

   Note 2: Never feel numbness while doing
KAATSU or allow your feets or legs to turn white, gray or blue. In these cases, immediately release the pressure and take off the KAATSU Air Bands.

8. Remove the KAATSU Air Bands on your legs and rehydrate.

BEFORE BED ARM PROTOCOLS
1. Manually tighten your KAATSU Air Bands on your arms to the appropriate Base SKU (pressure).
2. Inflate the KAATSU Air Bands on your arms to your personalized Optimal SKU.
3. Start with a conservative (i.e., low) SKU on the first KAATSU Cycle. Then proceed with higher and higher SKU levels on the next several subsequent KAATSU Cycles. For example, do 100 SKU for the first KAATSU Cycle, then 150 SKU on the second KAATSU Cycle, then 200 SKU on the third KAATSU Cycle, etc.
   Note: Even if the first or second KAATSU Cycles do not feel tight enough, it is perfectly acceptable to start at a low SKU pressure. This will help warm-up your capillaries and prepare them for higher and more effective SKU levels.
4. During these evening KAATSU Cycles, you can do standard physical therapy movements or the KAATSU Insomnia Protocols that includes:
   » Forward shoulder rolls
   » Backward shoulder rolls
   » Head rotations
   » Deltoid and triceps stretching
   Note: Movements before bedtime should be casual and light. Nothing too vigorous and difficult.
5. If you wish to maintain your stamina and strength during your rehabilitation period, do comfortable KAATSU Walking or KAATSU Power Walking on a treadmill or outside for 15-20 minutes with the inflated KAATSU Air Bands on your legs (doing repeated KAATSU Cycles). Alternatively, you can also do KAATSU Aqua in a pool.

DO’S
» Correctly place the KAATSU Air Bands on your upper arms and upper legs every time.
   Note: On your arms, the Bands should be placed above your biceps and triceps near your armpit, but below your deltoids.
» Check Base SKU (pressure) and find Optimal SKU (pressure) during every KAATSU session. Optimal Pressure is one that is not so high as to occlude, but high enough to get that “KAATSU Fatigue/Failure Feeling” during exercise.
   Note: Your Optimal SKU can change on a daily basis.
» Release the KAATSU Air Bands if you feel something is not right. If you feel lightheaded or if you have any pain on one side or the other, stop and continue on another day.
» You can do different exercises or movements during KAATSU. You can type emails or play the piano or play computer games. Be creative and enjoy the experience.
» Rest 30-60 seconds between different sets of exercises.
» Do hydrate well before, during and after each KAATSU session.

DON’TS
» Do not ever fully occlude blood flow. Signs of this are collapsed veins, no pulse at the wrist, pale palms and skin, severely delayed (>6 seconds) capillary refill.
» Do not have Air Bands inflated for more than 20 minutes on your limbs. The KAATSU Nano will deflate automatically the KAATSU Air Bands when the maximum time is reached.
» Do not lift heavy weights when doing KAATSU
Jamal Hill of Inglewood, California struggles with the degenerative disorder Charcot-Marie-Tooth - but not much else.

Filmmaker John Duarte discussed Hill, “Jamal, a Paralympic swimmer from Inglewood, California has blazed through boundaries. Once fully paralyzed from the neck down, and now top ranked in the United States, he teaches us that nothing - and no one - can put a limit on his ambition if he doesn’t impose one on himself.

As soon as I met Jamal, I knew I had to document his journey.” [see video below] Hill won a silver medal at the Para Pan American Games in Lima, Peru with a lifetime best. “He just keeps getting better and better under the tutelage of coach Wilma Wong. “Jamal has a passion - for swimming, for sharing his passion, for mentoring others - has is so uncommon. It is great to see him succeed both in his commercial ventures and in the water,” said Steven Munatones who taught Hill how to use KAATSU in his training.

Hill is happy with his progress using KAATSU Aqua, “The [KAATSU] technology has been so integral in my growth since we first met almost two years ago. I am glad to have something to commemorate this journey to Lima other than a llama souvenir.”

Hill, a personable aquapreneur and member of the USA Paralympic swim team, is looking forward to competing in the 2020 Tokyo, 2024 Paris and 2028 Los Angeles Paralympic Games despite living with Charcot-Marie-Tooth disease which is an inherited disorder that causes nerve damage in his arms and legs.

The disease results in smaller, weaker muscles, a loss of sensation and muscle contractions, and difficulty walking.

In Hill’s case, it significantly reduces the mobility in his legs where his motor function stops at his knee caps and his motor function in my arms is also impacted.

“[The disease] runs in my family,” Hill explained. “It affects my mom a little bit. It affects my uncles pretty heavily. Essentially my motor neurons in my outer extremities, from my elbow to my fingertips and from my kneecaps all the way to my toes gives me a lot of problems.”
But his overwhelming positive nature has enabled him to succeed in a sport he could have easily quit many times.

Currently coach by Wilma Wong, Hill is ranked #1 among American Paralympic swimmers in the 50m freestyle going into the Olympic year. But he has also created *Swimming Up Hill*, a digital marketing company that markets health and fitness brands, insurance and medical practices - and inspiring many young people who would not otherwise be swimming.

At its core, Hill’s mission is to teach 1 million people - including many with little access to the shorelines of California or pools in their neighborhoods. He want to teach these individuals how to swim. He works with swim schools in Southern California to help the schools facilitate more lessons for lower cost to the customer.

Hill is shown above with fellow American Paralympic medalist swimmer and KAATSU Aqua user Robert Griswold of Indiana.

“In Tokyo, I think there will be gold at the end of his Olympic rainbow,” predicted Munatones.

In Tokyo, I think there will be gold at the end of his Olympic rainbow.

Video above of Hill is courtesy of John Duarte, California.
9-year-old world-class swimmer Michael Andrew talks about how he uses the original KAATSU Master and the KAATSU Cycle mode for recovery (beginning at 9:59 in the above video).

It is important to note that he - and many other athletes in heavy training or during a competition - use the KAATSU Cycle mode before going to bed or taking a nap. The KAATSU Cycle mode is a repeated inflation and deflation of the KAATSU Air Bands. The pneumatic bands are inflated at subsequently higher and higher pressures so an increasing amount of blood is engorged in the limbs. This purposefully mechanical process is essential to enable the production of hormones and metabolites.

Andrew talks about how he uses the KAATSU Master and KAATSU Cycle mode (beginning at 2:51 in the above video) to prepare for vigorous training. The repeated cyclical process enables a very gradual engorgement of blood in the limbs so the body becomes very ready for a rigorous workout.
At 6:05 in the above video, he also talks about how he uses the pneumatic KAATSU Air Bands for various aspects of his training - from swimming fast to starts off the blocks.

At 12:59 in the above video, he is looking to reach his race pain threshold - that feeling while he goes all out where the body tells the brain to slow down or stop - and keep going with his inflated KAATSU Air Bands.

Athletes can divide their use of KAATSU in three primary ways:

1. Athletic Performance Improvement
2. Recovery
3. Rehabilitation

Athletic performance improvement can include a focus on speed, strength, stamina, range of motion, or technique. Each goal can require a different level of pressure. For example, aerobic exercise - like running, cycling or swimming - will require a lower pressure than anaerobic exercise. Stamina work dictates a lower pressure than sprint work. Stretching or range of motion exercises and technique work (e.g., sprinting or swimming race starts, baseball or golf swings, basketball or ice hockey shots, wrestling or boxing moves) can depend on the amount of work or ability to handle different pressures.

In the athletic performance realm, KAATSU should only continue until muscular fatigue is reached or proper technique is unable to be sustained. Ideally, that period can be anywhere from 5-12 minutes - and many times, even less time than that. That is, there is no need to continue KAATSU’ing while your body is so fatigued that poor technique is practiced.

Recovery can be repeated KAATSU Cycles after a vigorous workout or a game/performance - or even before going to bed. In these cases, the KAATSU Cycles should start at lower pressures (e.g., Group Low) and then gradually build up on each KAATSU Cycle. This gradual increase in pressure is key. On the KAATSU Cycle 2.0, this means that the athletes start at Group Low (the lowest pressure setting) on the first KAATSU Cycle and then Group Medium, Group High, Pro Low, Pro Medium, and Pro High on subsequent KAATSU Cycles.

If you want to improve your sleep quality, do simple exercises (e.g., forward and backward shoulder rolls, triceps stretching) while doing 2-5 bouts of conservative (i.e., low pressure) KAATSU Cycles.

For rehabilitation from a surgery or a muscle strain, back pain, broken bone or ligament tear, many repeated KAATSU Cycles 2 or even 3 times a day is extraordinarily helpful. This blog has several examples of specific protocols for rehabilitation of these such injuries.

In general, rehabilitation of capillary-poor body parts (e.g., ligaments, tendons) requires higher pressures and more frequent/numerous KAATSU Cycles than capillary-rich body parts (e.g., muscle).
KAATSU users often ask how KAATSU can be safely used as part of their rehabilitation of a broken limb, especially when the injured arm or leg must be kept immobilized as it heals.

Similar to Olympic silver medalist Todd Lodwick did in the month prior to the 2014 Sochi Winter Olympic Games when he broke his humerus and torn his ligaments in his left arm, KAATSU users can perform KAATSU twice per day, primarily using the KAATSU Cycle mode on their other three healthy limbs.

The standard KAATSU 3-Point Exercises in the KAATSU Cycle mode can be used: Hand Clenches + Biceps Curls + Triceps Extensions on the arms plus Heel Raises + Leg Curls + Non-lock Partial Quarter Squats on the legs. KAATSU Walking or KAATSU Aqua Walking can be performed as one very effective alternative in the injury is in the arms. The KAATSU Cycles, ideally, should be performed in the mornings and then within one hour of bedtime.

The effects are best if the movement of the healthy limbs is slow and steady. Ideally, the muscles in movement should be contracted in both
the positive and negative directions.

The reason why KAATSU on the healthy limbs is effective is because KAATSU has systemic effects all over the body, including in the injured limb - even if KAATSU is not done on that limb.

At the Indiana University School of Health and Rehabilitation Sciences Center for Translational Musculoskeletal Research and the University of Indianapolis Department of Kinesiology, Dr. Alan Mikesky and his research team researched the crossover effects of KAATSU [see Modified KAATSU Training: Adaptations and Subject Perceptions here]. In his research, Professor Mikesky was looking to confirm the systemic effects of KAATSU.

The researchers applied KAATSU Air Bands on only one arm of subjects and tested the strength, girth, tomography scans along with RPE (Rated Perceived Exertion scale) of both arms of the subjects.

The research team correctly did KAATSU and measured both the Base SKU (which they called “Cuff Tightness Pressure in mm Hg” and Optimal SKU (which they called “Cuff Inflation Pressure in mm Hg”) levels.

It should be noted that the SKU levels were conservative for relatively young subjects. The subjects started at 10 Base SKU in Week 1 and increased to 30 Base SKU by Week 8; they started at 90 Base SKU in Week 1 and increased to 180 Base SKU by Week 8. Both the KAATSU arm and the non-KAATSU arm girth increased (measured in cm between Week 0 and Week 8):

<table>
<thead>
<tr>
<th>Week 0: 22.7 cm</th>
<th>Week 2: 24.3 cm</th>
<th>Week 4: 24.9 cm</th>
<th>Week 6: 25.7 cm</th>
<th>Week 8: 26.1 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-KAATSU Arm</strong></td>
<td>** KAATSU Arm**</td>
<td></td>
<td></td>
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<tr>
<td>Arm (cm) girth:</td>
<td>Arm (cm) girth:</td>
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<tr>
<td>Week 0: 23.0 cm</td>
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<td>Week 2: 23.2 cm</td>
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<td>Week 4: 24.5 cm</td>
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<tr>
<td>Week 6: 25.4 cm</td>
<td>Week 8: 26.1 cm</td>
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</table>

The research showed how doing KAATSU on one limb can have crossover (systemic) effects on the other limb - a very important goal for individuals with one injured limb who is trying to recover.

In the video above, this effect was practically demonstrated was with 2010 Olympic silver medalist Todd Lodwick who broke his left arm and torn his ligaments 28 days before the 2014 Winter Olympics.

With KAATSU done on his non-injured limbs, he was able to compete admirably well in both the ski jumping and the Nordic combined events after only 5 weeks of KAATSU.

During his rehabilitation, the staff at the U.S. Ski & Snowboard Association noted that Lodwick was getting too muscular after a few weeks of KAATSU - despite his broken bone and torn ligaments and doing no weights or traditional strength training exercises. In response, his SKU levels was reduced and he stretched more and did low-pressure, post-workout KAATSU Cycles so his muscle hypertrophy was not accelerated (see above). Personally, Lodwick liked the effects and ultimately was able to compete.

In summary, doing KAATSU on healthy limbs can have direct crossover benefits to the recovery, strength and girth of an injured limb or core.

Another previous study conducted in Japan is entitled Cross-Transfer Effects of Resistance Training with Blood Flow Restriction (see here).

Silver medalist Todd Lodwick is shown above doing similar KAATSU training after his skiing accident and was able to rehabilitate and recover quickly enough to compete in the 2014 Winter Olympic Games in Sochi.
Cory Keirn, DPT, OCS, CSCS, TSAC-F, XPS is a Doctor of Physical Therapy located in Tampa, Florida. He is a former Strength & Conditioning Coach with the WWE (World Wrestling Entertainment) and the Philadelphia Phillies, a Major League Baseball professional team. He did his residency in orthopaedics with a focus on complex orthopaedic cases and advanced physical therapy integration for tactical athletes.

KAATSU Master Specialist Keirn explains how to use the KAATSU Cycle 2.0 from many perspectives and for various applications. These videos summarize the information that he shares with his patients who regularly use KAATSU for their rehabilitation and recovery.
35-year-old Kenyan distance runner Eliud Kipchoge EGH was the first person to run a full marathon under 2 hours in Vienna, Austria in October 2019 [see above]. Because of the unique circumstances of the special event, Kipchoge is still the world record holder in the marathon run with a time of 2:01:39 that he set in September 2018 at the Berlin Marathon.

Dr. Borja Muñiz Pardos, a Spanish researcher specializing in testing the effectiveness of technological applications to improve the athletic performance in runners, was most recently involved in the Sub2hrs marathon project.

Dr. Muñiz completed a Master’s in High Performance Sport in the Spanish Olympic Committee and works under the supervision of Professor Yannis Pitsiladis at the University of Brighton in the UK. Within the framework of the Sub2hrs marathon project, he has collaborated in different studies in the University of Zaragoza and the University of Stirling.

After finishing his PhD and obtaining the Extraordinary Doctorate Award, he has continued his work as a sport scientist for the Sub2hrs marathon project, with special focus on the effects of brain stimulation on physical performance.

Dr. Muñiz is now undertaking a review of the scientific literature on KAATSU.
KAATSU IMPLICATIONS FOR THE ELDERLY AND COMPETITIVE ATHLETES

A 76-year-old woman in Southern California was looking to maintain her health.

Her use of KAATSU very pleasantly surprised her and her family.

She started doing KAATSU Cycles on her arms and legs twice a day on her new KAATSU Cycle 2.0 unit while doing stretching and the standard KAATSU 3-Point Exercises (see here for arms and here for legs).

“Not only did she see a nice visual improvement in her overall muscle tone [see top photo above], but she also realized a significant decrease in her triglyceride levels* from 327 to 144,” observed Steven Munatones.
“She achieved these results without changing her diet or changing the amount or intensity of exercise she normally did over a 2-month period. But what she did new was simply do KAATSU Cycles on her arms and legs twice a day on a KAATSU Cycle 2.0 unit while doing stretching and the standard KAATSU 3-Point Exercises in the comfort and convenience of her home (see here for arms and here for legs).”

KAATU inventor Dr. Yoshiaki Sato has long seen these kinds of results with his older patients in Tokyo, Japan.

One of his early studies on the effects of KAATSU was published in 2000 in the Journal of Applied Physiology (titled Effects of resistance exercise combined with moderate vascular occlusion on muscular function in humans).

Background
KAATSU inventor Dr. Sato discovered throughout the 1970s, 1980s and 1990s that KAATSU is extremely effective for training of everyone from elite athletes to older people facing sarcopenia.

During the 1980s, his Japanese clients and athletes started to incorporate this new training and rehabilitation modality, but it took until the mid-1990’s before Dr. Sato found an inquisitive collaborator in Professor Naokata Ishii of the University of Tokyo (Department of Life Sciences) began to conduct formal research studies on KAATSU.

Their first major peer-review paper was published in the Journal of Applied Physiology.
KAATSU Vernacular
The results were not surprising to Dr. Sato, but Professor Ishii knew that the findings were difficult for the journal editors to accept because the word “KAATSU” was unknown in the research and sports world outside of Japan. After discussions with the journal editors, KAATSU was described in the literature as vascular occlusion - even though Dr. Sato and Professor Ishii wanted to steer away from the word occlusion. They know there is no arterial limb occlusion of the brachial artery and brachial veins even at high pressures with the pneumatic KAATSU Air Bands. The ultrasound image on left shows the brachial artery and brachial veins at 300 SKU (mmHg) of a 21-year-old collegiate athlete.

Percent changes in cross-sectional area and isokinetic strength were compared: the KAATSU Group increased more than the low-intensity non-KAATSU Group and were similar to the high-intensity non-KAATSU Group.

Before and after exercise, arterial blood flow and plasma lactate concentration were measured; during exercise, the electromyographic activity of the biceps muscle was recorded. The average SKU (mmHg) pressure was 110.

GH concentration, electrical activity in the working muscles, muscular hypertrophy (in both the biceps and triceps), muscular strength, and number of muscle fibers recruited increased with the KAATSU Group as it did with the high-intensity non-KAATSU Group.

Implications for the Elderly Population and Competitive Athletes
The increase in muscle fiber recruitment with KAATSU has implications for elite athletes and older people. The moderation of blood circulation and the hypoxia and acidic intramuscular environment also leads to additional motor-unit recruitment.

For example, repeated KAATSU without any exercise during bed rest effectively prevents muscle atrophy.

Furthermore, when the leg muscles of older people gradually weaken, the inability to stand up and walk increase and serious problems with falling occur. Although resistance exercise can improve muscular strength and size and bone mineral density, KAATSU presents the opportunity to achieve their beneficial results without large mechanical stress. Additionally, when KAATSU is applied with simple resistance exercise, an increase in energy consumption is also seen.

Study and Findings
24 women (ages 47-67 years) did a 16-week training program (3 sets of single-arm dumbbell curls in the sitting position with non-dominant arm and a 1-minute rest between sets, performed twice per week) comparing KAATSU exercise (at 110 SKU pressure) with low-intensity exercise without KAATSU and high-to-medium intensity exercise without KAATSU.
For competitive athletes undergoing a season-long vigorous training program, recovery days or less-than-highly-intense training days are built into their training regimen.

For these athletes, they can train as normal during their intense workouts during hard sessions, but also with the increase of muscle fiber recruitment with KAATSU on their recovery days, the athletes are effectively training vigorously every session with the usual fatigue and muscle soreness than comes with intense sustained exercise.

* A high triglyceride level combined with high LDL (bad) cholesterol or low HDL (good) cholesterol is linked with fatty buildups within the artery walls, which increases the risk of heart attack and stroke. The 76-year-old woman’s triglyceride level fell over an 8-week period from 327 mg/dL (high) to 144 mg/dL (normal).

Normal levels of triglycerides is less than 150 mg/dL
Borderline high is 150 to 199 mg/dL
High is 200 to 499 mg/dL
Very high is 500 mg/dL or above
KAATSU is the ultimate bio hack for health, rehabilitation and recovery.

Invented in 1966 by Dr. Yoshiaki Sato of Tokyo, Japan, and protected by 47 patents, KAATSU next-generation equipment and protocols have a unique and unprecedented safety track record with over 20 million individual KAATSU sessions in 48 countries around the globe.

Backed by over 50 years of expertise, KAATSU Global is excited to introduce the latest advancement in health and wellness, the KAATSU Cycle 2.0.

Fitting in the palm of your hand or in your pocket, the KAATSU Cycle 2.0 is the most advanced, most portable, easiest-to-use compression device in the world. In combination with a precise algorithm-controlled limb pressure, KAATSU’s narrow, elastic bands yield to muscle contractions, providing safe and effective exercise and rehabilitation for users of all ages and from all walks of life, from Olympic champions to disabled individuals.

KAATSU users have a full range of motion providing complete control and the opportunity for a wide variety of movements and training.

From elite athletes and soldiers to aging Baby Boomers and busy executives, KAATSU Cycle 2.0 is the next-generation training and rehabilitation device used around the world.
KAATSU CYCLE 2.0

› Exercise, recover and rehabilitate anywhere anytime
› Offers KAATSU Cycle and KAATSU Training modes
› Ultra compact, ultralight, durable
› Utilizes precise, computer-controlled limb pressure on both arms, or both legs
› The pneumatic elastic bands can be “untethered” from the KAATSU unit and are waterproof, for use in the pool
› Utilizes original KAATSU know-how
› US patent #9,775,619

PACKAGE
› Includes 4 KAATSU Air Bands (for arms + legs)
› Rechargeable battery with USB-C charger

RETAIL PRICE
› $899.95 (1-yr warranty on device, 6 mo on bands)
› $979.95 (2-yr warranty on device, 6 mo on bands)

BENEFITS
› Tone muscle without weights
› Convenient: do anywhere, anytime
› Offers access to KAATSU Performance Database
› Offers 6 present KAATSU Cycle levels
› Improves speed, stamina and strength
› Incredible time saver
› Improves circulation
› Faster recovery
› Enables greater range of motion
› Reimbursable with various CPT codes
› Offers customizable KAATSU Training pressures
› Proven safe for users up to 104 years old

ABOUT KAATSU

KAATSU is the world-leader in blood flow moderation training and therapy. Invented in 1966 by Dr. Yoshiaki Sato in Tokyo, Japan and protected by 47 patents, our equipment and protocols have an impressive and unprecedented safety track record with over 20 million individual KAATSU sessions in dozens of countries across the globe. From elite athletes, to baby boomers, and everyone in between, KAATSU is the ultimate biohack for health and rehabilitation.

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KAATSU is has received recognition and coverage in prominent and prestigious publications.

"Can You Work Out Less, Get More Results?"
By Eleanor Warnock and Rachel Bachman
The Wall Street Journal
With Kaatsu, people do a light workout while wearing pressurized belts, first on the upper arms and then on the legs. 

"Could the Kaatsu Workout Be the Most Efficient Exercise?"
By WSJ Video
The Wall Street Journal
Japanese bodybuilder Yoshiaki Sato says he has a way for Hollywood’s aging action stars to stay as youthful and fit as ever.

"Kaatsu training is blowing fitness researchers' minds"
By Jon R. Anderson, Staff Writer
MilitaryTimes
Read the article and discover why so many people are so excited about KAATSU Training.

"You Should Probably Try This Japanese Blood-Flow Routine"
By Devon Jackson, Staff Writer
OutsideOnline.com
Footballers of both kinds have caught on. Here’s what you need to know.

Customer Service:
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“Our goal is to awaken human potential by sharing precise effective tools and methods to maximize the health, happiness and performance of people who want to realize their potential,” explains David Weinstein of LIFEFORCE IQ and OASIS in Boca Raton, Florida.

Weinstein was an investment banker for 35 years, specializing in biotechnology and medical companies. With that background and knowledge, combined with his lifelong interest in athletics and anti-aging, he and his wife Leidy are offering their lifestyle design via LIFEFORCE IQ.

“We continuously monitor scientific advances and are quick to adjust products and protocols to assist our clients in optimizing their lifestyles.”

In addition to KAATSU equipment including the new 2.0 and KAATSU Aqua, the Weinstein’s offer Juvent Health Micro-Impact Platform, LiveO2, Viome, Tower Garden, and One Truth 818.

For more information, visit here.

For additional examples of how people of all ages have improved themselves, visit here.