Incorporate an Ultimate in-season strength, conditioning program to help prevent injuries

Ultimate “Frisbee™” began in New Jersey in the 1960s. Today, nearly one million people participate in the sport described as a cross between soccer and American football. It involves sprinting, cutting, jumping and diving to make catches, and lunging/pivoting to make throws. Ultimate technically is a non-contact sport, but data indicates it is really a moderate contact sport, like soccer or basketball. Approximately 50 percent of the game injuries occur from player-to-player, or player-to-ground contact while competing for a disc, or diving to make a catch. Quality of playing surface, tournament format, access to athletic trainers and other medical personnel, number of players on a team and level of physical conditioning also impact injury rates.

The vast majority of non-contact injuries involve the lower extremity. These include muscle strains (hamstring most commonly) and ligament sprains to ankles and knees. A thorough warm-up before games and practices can reduce muscle strains. Strengthening, as well as proper training on cutting and jumping techniques, can help reduce the risk of ligament injuries to knees and ankles. Adequate conditioning and preparation allow players to sustain high levels of play and avoid fatigue-related injuries during long tournament weekends. Upper body and head injuries associated with ground contact while diving can be reduced by learning proper technique.

Because of Ultimate’s athletic and fitness demands, Dr. Steven Chudik, orthopaedic surgeon, sports medicine physician and founder of the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF), along with James Wolf, PT, DPT, OCS, developed this in-season strength and conditioning program for Ultimate. The program is based on research and personal experience both professionally and directly as Ultimate participants. Their goal was to create an in-season strength and conditioning program that optimizes performance and reduced injury rates when the risk is the highest. The program includes a progression of body weight strengthening exercises designed to increase in difficulty over eight weeks. It also focuses on body mechanics, jumping and cutting form to reduce on-the-field, non-contact injuries and improves performance by increasing strength and endurance. By incorporating this either into your current program, or using it as a stand-alone in-season program, it should help keep Ultimate players in the game and performing at their best all season.
About the Program

Exercises
- Complete three supersets of the exercises two times per designated week with at least one to two days between workouts.
- One superset equals one round of all exercises.
- Repeat superset sequence three times to complete exercise portion before moving to conditioning drills.
- There is no prescribed rest between supersets or exercises.

Conditioning
- Use a 15-minute running clock. Start the stopwatch at the beginning of the first conditioning pattern. Allow it to run without stopping throughout the five pairs of conditioning patterns and the time it takes to move between them. Each pattern and move can take no more than one and one-half minutes. Any amount of time less than that can be a rest break.
- Alternate between conditioning patterns every one and one-half minutes.
  Example: 1st Pattern start times @0:00, @3:00, @6:00, @9:00, & @12:00
  2nd Pattern start times @1:30, @4:30, @7:30, @10:30, & @13:30

Important Notice
As with any exercise program, it is essential to maintain proper form and technique during the exercises and conditioning to receive maximum benefits and prevent injury. Seek professional help on arm swing, jumping, and landing mechanics to learn pointers and stay injury free.

Not all exercises are suitable for everyone. Consult your physician before beginning this or any other exercise program. Also, always warm up for several minutes before beginning a workout and NEVER exercise beyond the level at which you feel comfortable. If at any time you feel you are exercising beyond your current fitness abilities, or feel discomfort, discontinue exercise immediately and reconsider your participation in this program.

This Ultimate in-season strength, conditioning and injury prevention program should not be attempted by anyone who does not meet minimum fitness requirements, or who has a history of hip, knee, ankle, shoulder, elbow, wrist or spinal (neck or back) problems. THIS WARNING IS NOT TO BE DISCOUNTED. There are many other fitness alternatives if you have weaknesses, or are prone to injuries. The user assumes all risks of injury in the use of this program.
### Exercises & Conditioning Drills

**Week 1—Perform 3 Supersets**

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<td>Front Plank</td>
<td>Hold</td>
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<td>Pattern #2: 5-Yard Shuffle—for 20 seconds: 1:30, 4:30, 7:30, 10:30, 13:30</td>
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### Week 2—Perform 3 Supersets

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## Exercises & Conditioning Drills

### Week 3—Perform 3 Supersets

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<tr>
<td>Lunge</td>
<td>Reverse Slide Lunge</td>
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<td>Side Lunge</td>
<td>Lateral Slide Lunge</td>
<td>10 each leg</td>
</tr>
<tr>
<td>Bridges</td>
<td>Marching</td>
<td>10</td>
</tr>
<tr>
<td>Front Plank</td>
<td>Kicks</td>
<td>10 each leg</td>
</tr>
<tr>
<td>Side Plank</td>
<td>Abductions</td>
<td>10 each side</td>
</tr>
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<td>Calf Raises</td>
<td>Single Leg</td>
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| Pattern #1: Half Goose Cones—1 rep |
| Pattern #2: Heiden Jump—10 reps each direction |
| 1:30, 4:30, 7:30, 10:30, 13:30 |

### Week 4—Perform 3 Supersets

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## Exercises & Conditioning

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<tbody>
<tr>
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<td>Elevated Split Squats</td>
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</tr>
<tr>
<td>Side Lunge</td>
<td>Lateral Step Lunge</td>
<td>10 each leg</td>
</tr>
<tr>
<td>Bridges</td>
<td>Single Leg</td>
<td>8 each leg</td>
</tr>
<tr>
<td>Front Plank</td>
<td>Arm Reaches</td>
<td>5 each arm</td>
</tr>
<tr>
<td>Side Plank</td>
<td>Abductions with Hold</td>
<td>5 raises then</td>
</tr>
<tr>
<td>Squats</td>
<td>Double Leg into Calf Raise</td>
<td>15 second hold</td>
</tr>
<tr>
<td>Calf Raises</td>
<td>Single Leg</td>
<td>15 each leg</td>
</tr>
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</table>

### Conditioning

<table>
<thead>
<tr>
<th>Pattern #1: Serpentine—1 rep</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pattern #2: 5-10-5-Yard Pro-Agility—2 reps</td>
<td>1:30, 4:30, 7:30, 10:30, 13:30</td>
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</tbody>
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<td>Front Plank</td>
<td>Arm Reaches</td>
<td>8 each arm</td>
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Orthopaedic Surgery & Sports Medicine
Teaching & Research Foundation


### Exercises & Conditioning Drills

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<tbody>
<tr>
<td>Lunge</td>
<td>Skater Squats</td>
<td>8 each leg</td>
</tr>
<tr>
<td>Side Lunge</td>
<td>Single Leg Deadlifts</td>
<td>8 each leg</td>
</tr>
<tr>
<td>Bridges</td>
<td>Single Leg</td>
<td>10 each leg</td>
</tr>
<tr>
<td>Front Plank</td>
<td>Arm Reaches</td>
<td>10 each arm</td>
</tr>
<tr>
<td>Side Plank</td>
<td>Abductions with Hold</td>
<td>10 raises them, 25 second hold each side</td>
</tr>
<tr>
<td>Squats</td>
<td>Squat Jumps</td>
<td>10</td>
</tr>
<tr>
<td>Calf Raises</td>
<td>Single Leg</td>
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#### Conditioning

<table>
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<tbody>
<tr>
<td>Full Goose Cones—1 rep</td>
</tr>
<tr>
<td>Heiden with Double Quick Middle—10 reps each side</td>
</tr>
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#### Week 8—Perform 3 Supersets

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<td>15 each leg</td>
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<tr>
<td>Front Plank</td>
<td>Arm Reaches</td>
<td>12 each arm</td>
</tr>
<tr>
<td>Side Plank</td>
<td>Abductions with Hold</td>
<td>12 raises then, 30 second hold each side</td>
</tr>
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<td>Squats</td>
<td>Squat Jumps</td>
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**Lunge Exercises**

**Split Squat**
1. Start with feet shoulder-width apart with back knee on ground, trunk upright and front knee flexed 90 degrees with knee behind your toes.
2. Push through your front leg to raise up keeping the weight in the heel of your front foot ending when your back leg is straight.
3. Return to start position and repeat.
4. Complete all repetitions on one leg before switching to the other leg.

**Correct Form**

**Incorrect Form**
Make sure front knee does not go inward relative to front foot.

**Reverse Slide**
1. Start position: standing, feet together with one foot on the slide object.
2. Keep most of your body weight on the non-slide foot.
3. Move foot on the slide backward into a lunge, same form as split squat.
4. Push through non-slide leg to return to standing.
5. Complete all repetitions on one leg before switching to the other leg.

*Slide options:* Towel on wood floor, paper plate on carpet, or disc on grass.
**Lunge Exercises**

### Elevated Split

1. Start position: Place back leg on object approximately same height as knee.
2. Lower front leg until knee is at approximately 90 degrees.
3. Press through the front leg to return to start position.

### Skater

1. Start by standing on one leg with the opposite leg bent and target object placed one foot behind stance heel.
2. Bend stance knee, lean trunk forward and tap the opposite knee to target.
3. Don’t put weight on the target.
4. Make sure stance knee does not go inward relative to the foot.
5. Return to standing and repeat repetitions before changing legs.

**Target options**: Use cones, disks, etc., as targets. Taller cones make it easier.
Lunge Exercises

Side

1. Start feet apart one and one-half times your shoulder width and toes pointing forward.
2. Squat down towards your left foot, lowering yourself until the left thigh is parallel with the ground.
3. Keep your left knee pointing forward and right leg straight.
4. Return to start, then repeat squatting toward your right foot.
5. Continue to alternate legs to complete repetitions.

Lateral Slide

1. Start by standing with feet together, one foot on a slide object such as a disc placed on the ground.
2. Keep most of your body weight on non-slide foot.
3. Slide your foot to side, until your stationary thigh is parallel to the ground.
4. Push through non-slide leg to return to standing position.
5. Complete all repetitions on one side before switching legs.

Slide options: Towel on wood floor, paper plate on carpet, or a disc on grass.
**Lunge Exercises**

**Lateral Step**

1. Start by standing on one leg with stance knee slightly bent.
2. Bend from hip extending opposite leg back and arm forward. Keep back straight and do not rotate hip and shoulders.
3. Return to starting position.
4. Complete all repetitions on one side before switching to the other leg.

**Single Leg Deadlift**

1. Start by standing on one leg with stance knee slightly bent.
2. Bend from hip extending opposite leg back and arm forward. Keep back straight and do not rotate hip and shoulders.
3. Return to starting position.
4. Complete all repetitions on one side before switching to the other leg.
**Bridge Exercises**

**Double Leg**

1. Lay on your back with knees bent and feet on ground about hip-width apart.
2. Keep back flat and lift hips off the ground using your glute muscles (buttocks).
3. Lower hips back to the ground to complete one repetition.
4. Repeat.

**Marching**

1. Lay on your back with knees bent and feet on the ground like Double Leg Bridge exercise above.
2. While holding raised bridge position, lift left knee towards your chest.
3. Return left foot to the ground maintaining raised bridge position.
4. Lift right knee towards your chest, then lower foot to the ground while maintaining raised bridge position.
5. Lower hips back to the ground to complete one repetition.
6. Repeat.

*Incorrect form*
Don’t let hips drop or rotate while lifting knee.
**Bridge Exercises**

**Single Leg**

1. Lay on your back with your hands at sides, one knee bent with foot flat on the ground and other leg raised and bent with foot pointed up (left photo).
2. Using your glute muscles (buttocks), raise your hips up creating a straight line from your knees to your shoulders.
3. Return to starting position.
4. Repeat and complete all repetitions with one leg before changing legs.
5. Make sure to keep your hips level as you lift up and down.

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**Play, participate at peak performance with sport-specific OTRF programs**

Through the Orthopaedic Surgery & Sports Medicine Teaching & Research Foundation (OTRF), Dr. Steven Chudik and his health performance team provide reliable and proven training information to help athletes of all ages and abilities compete and perform at their best—no matter if it is a state athletic championship, or a weekly golf outing with friends. One of the most popular resources is OTRF’s sports performance programs such as this Ultimate strength and conditioning program for injury prevention. Research-based, these programs incorporate appropriate exercises, weights and stretching into weekly training schedules to maintain strength and help minimize injuries.

To download any of the free sports injury programs from Dr. Chudik and OTRF, visit the OTRF website, [otfund.org](http://otfund.org) and click on the sports performance tab. Or, you can email [contactus@chudikmd.com](mailto:contactus@chudikmd.com) for a printed version. Make sure to include your mailing address.
Front Plank Exercises

Holds

1. Begin in the plank position with your forearms and toes on the ground and your elbows in line with your shoulders.
2. Keep your torso straight and rigid with your body in a straight line from your shoulders to your feet.
3. Your head should be relaxed and you should be looking at the ground.
4. Tighten your glutes (buttocks) and abdominal muscles.
5. Hold the position for specified time.

Leg Kicks

1. Start in front plank position.
2. Maintain good plank form with feet slightly wider than hips.
3. Slowly raise one leg up lifting your foot five to eight inches off the ground, then slowly lower your leg to the ground.
4. Raise opposite leg to complete one repetition.
5. Repeat.
6. Don’t allow hips or shoulders to rotate as you raise and lower your legs.
Front Plank Exercises

Arm Reaches

1. Begin in the plank position with your forearms and toes on the ground and your elbows in line with your shoulders.
2. Maintain good plank form with feet slightly wider than hips.
3. Reach one arm straight forward keeping it off the ground.
4. Return to starting position.
5. Repeat with other arm to complete one repetition.

Incorrect form
Don’t allow hips or shoulders to rotate or shift side to side as you reach.
Side Plank Exercises

Holds

1. Begin in side plank position with your body in a straight line from ankles through the hips and shoulders. Bottom elbow should be in line with shoulder and your top arm resting on your side.

2. A straight line should be maintained from both a front and side view.

3. Hold for the required time, then lower and switch to the other side.

Abductions

1. Begin in side plank position and maintain good form throughout exercise.

2. Raise your top leg up and down to complete specified number of repetitions.

3. Switch sides and repeat.
Side Plank Exercises

Abductions with Hold

1. Begin in side plank position.
2. Raise your top leg up and down for specified number of repetitions, then hold at the top position for specified time. Maintain good plank position throughout exercise.
3. Switch sides and repeat.

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Squat Exercises

Calf Raise

1. Start with feet hip-width apart and toes forward.
2. Bending at the knees, lower your body until your thighs are parallel to the ground making sure to keep knees apart.
3. Raise up quickly and push up on to toes with a calf raise.
4. Lower heels to ground and legs back into a squat to complete one repetition.

Incorrect Squat Technique
Don’t let knees point inward.

Jumps

1. With feet hip-width apart and pointed forward, squat down until your thighs are parallel with the ground, keeping knees apart.
2. Jump straight up extending hips, knees and ankles.
3. Land softly and lower into full squat, keeping knees apart and feet forward to complete one repetition.
Calf Raise Exercises

Double Leg

1. Place feet under hips with knees straight. Use an object or teammate for balance as needed.
2. Raise heels fully off the ground.
3. Return heels to ground to complete one repetition.
4. Repeat.

Single Leg

1. Stand on one leg with knee straight.
2. Raise heel of straight leg fully off the ground.
3. Return heel to the ground to complete one repetition.
4. Complete all repetitions on one side before switching legs.
**Conditioning Drills**

### 10-20-30-Yard Shuttle Run—Pattern 1 (One repetition)

1. Set up four cones in straight line, ten yards between each as shown above.
2. Start at the first cone and run ten yards to cone #2 and back to the first cone.
3. Continue running from the first cone to the remaining cones and returning each time to cone #1.
4. Always face towards cones when turning so you alternate turning directions. Focus on good footwork and accelerating out of turns.
5. Run the pattern one time. If it is completed in less than one and one-half minutes, rest for remaining time then start **5-Yard Shuffle**.

### 5-Yard Shuffle—Pattern 2 (20 seconds)

1. Set up two cones in a straight line, five yards apart.
2. Start at one cone and shuffle quickly back and forth between cones for **20 seconds**.
3. Keep feet wide throughout shuffling motion.
4. Rest for remaining 70 seconds then repeat the **10-20-30-Yard Shuttle Run** alternating between the two patterns every one and one-half minutes.
**Conditioning Drills**

**Half Goose Cones—Pattern 1 (One repetition)**

1. Set five cones in straight lines five yards between each as shown above.
2. Start facing middle cone (#3) so you must turn 90 degrees and run to cone #4.
3. Stop, pivot, and continue running pattern.
4. Run the pattern one time. If it is completed in less than one and one-half minutes, rest for remaining time then start **Heiden Jump**.

**Heiden Jump—Pattern 2 (10 repetitions each direction)**

1. Set two cones per person, six to ten feet apart.
2. Start at right cone standing on your right leg with knee bent in partial squat.
3. Jump high and wide to your left landing softly on your left leg at the cone, or as close to it as possible. Try to maintain balance throughout the drill.
4. Jump from the left cone back to the right cone landing softly on your right leg and repeat to complete 10 reps in each direction.
5. If all reps are completed in less than one and one-half minutes, rest for remaining time, then start **Half Goose Cones** alternating between the two patterns every one and one-half minutes.
**Conditioning Drills**

**Serpentine—Pattern 1 (One repetition)**

1. Set up cones according to picture on the left.
2. Begin at the starting cone (right photo) and run circuit as shown.
3. Cut outside of the cones running from start to finish. Focus on good footwork and acceleration out of the turns.
4. Run the pattern one time. If it is completed in less than one and one-half minutes, rest for remaining time then start 5-10-5-Yard Pro Agility drill.

**5-10-5-Yard Pro Agility—Pattern 2 (Two repetitions)**

1. Set up three cones in a straight line five yards apart.
2. Run the drill in pairs with one person (offense/defense) on opposite sides of the cones starting at the middle cone (#2), facing the cones and each other.
3. When ready, offense begins by running either direction towards cone #1, or cone #3 (no faking).
4. Defense reacts to offense and runs in same direction, mirroring run patterns.
5. Continue running to the opposite cone and finishing in the middle as shown above.
6. Switch offense and defense roles and complete second repetition.
7. If all reps are completed in less than one and one-half minutes, rest for remaining time, then start Serpentine alternating between the two patterns every one and one-half minutes.
**Conditioning Drills**

**Full Goose Cones—Pattern 1 (One repetition)**

1. Set five cones in straight lines five yards between each as shown above.
2. Start facing middle cone (#3) so you must turn 90 degrees and run to cone #4.
3. Stop, pivot, and continue running pattern to complete one repetition.
4. If it is completed in less than one and one-half minutes, rest for remaining time then start **Heiden with Double Quick Middle**.

**Heiden Jump with Double Quick Middle—Pattern 2 (10 reps per side)**

1. Set up three cones in a straight line four to six feet apart.
2. Start at right cone standing on your right leg with knee bent in partial squat.
3. Jump high and wide to your left landing softly on your left leg at the middle cone.
4. Quickly step on your right foot and jump to the left outside cone, landing softly on your left foot.
5. Continue jumping back and forth landing in the middle and quickly changing feet.
6. If all reps are completed in less than one and one-half minutes, rest for remaining time, then start **Full Goose Cones** alternating between the two patterns every one and one-half minutes.
Teaching proper layout form

Proper technique can reduce injuries when hitting the ground. Additionally, coaches should educate players on when to layout (extend into a prone position) in order to avoid dangerous situations and reduce potential risk for injury. For example, diving into another player’s back, or cutting off another player can result in avoidable injuries. Ideally, a player’s forearms should make first contact with the ground (1) and continue to slide along the ground as the landing progresses (2). While keeping the hands and disc raised, the player should continue sliding on his/her chest (3). Players should not try to catch themselves with their hands.

Once a player can demonstrate good form on a layout starting from a kneeling position, they can progress to starting from a low squat (4), and then finally from a jog. When running, players always should try to create a good horizontal push off with their legs to create enough momentum to slide across the ground on landing. Layouts in a game might not always have perfect technique, but education in fundamentals will help reduce the risk of injury.

Sports Medicine, Injury Prevention Expertise Provided by Team Chudik

The goal of Dr. Steven Chudik and his health performance team is to provide you and your athletes with reliable and proven training information so they can compete and perform at their highest level and ability while limiting their risk for injury. This program is based upon research which found athletes need to incorporate specific exercises into their weekly training schedules to maintain strength and help minimize injuries. To maximize the benefit of this program and prevent injury, it is important for players to follow the recommended programs and maintain proper form at all times.

Steven C. Chudik, MD
Board-certified orthopaedic surgeon and sports medicine specialist and founder and president of OTRF, Dr. Chudik has been playing Ultimate for seven years.

James Wolf, PT, DPT, OCS
A licensed physical therapist and board-certified orthopaedic clinical specialist, James holds a doctor of physical therapy and is a coach and Ultimate player.
Sports Injury Medicine Clinic

To assist coaches, athletic trainers, players and parents, Dr. Steven Chudik, a board-certified orthopaedic surgeon and sports medicine physician, has urgent appointments for injured athletes. An on site X-ray suite and an open-bore, high-field magnetic resonance imaging (MRI) machine expedites proper diagnosis and treatment. To request an appointment with Dr. Chudik, call 630-324-0402.

About OTRF

Dr. Steven Chudik, orthopaedic surgeon and sports medicine physician specializing in shoulders, knees and sports medicine, founded the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF) in 2007. OTRF is a nonprofit, 501(c)(3) organization dedicated to funding research and education for the purpose of keeping people active and healthy.

Dr. Chudik has seen a growing demand by patients, athletic trainers and clinicians for up-to-date medical information and unbiased research on injury prevention—as well as information on injuries, arthritis (wear and tear) to joints, cartilage, tendons, ligaments, etc. To fulfill these requests, OTRF produces and distributes an E-newsletter, shares information about health performance-related issues like nutrition and fitness, hosts athletic training educational programs, conducts seminars for healthcare providers and the community and most important, funds unbiased research and development particularly in emerging areas such as arthroscopic and minimally invasive surgery for injuries to the meniscus, labrum, rotator cuff, ACL and cartilage.

However, none of this is possible without ongoing financial support. We are extremely grateful to all those who have contributed in the past. Many donations come from patients or their family members who benefited from Dr. Chudik's orthopaedic and sports medicine expertise. If you are interested in helping OTRF fund education and research programs, please contact Dr. Chudik at 630-324-0402, or visit otrfund.org and click on the “Donate” tab at the top.

Also, many companies sponsor programs that match charitable donations made by employees. Some even match retirees’ and/or spouses’ donations. Matching gift programs are a great way to double your generosity. Regardless of the amount, every contribution helps make a difference today and for years to come.

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