

State TheatreNJ.org
Keynotes



STREB:
INVISIBLE FORCES

Welcome!

The State Theatre in New Brunswick, New Jersey welcomes you to the school-day performance of STREB. Their show, *Invisible Forces*, creates the thrills of the circus, the heart thumps of a great adventure movie, and the velocity of the Indy 500 in one big, crowd-pleasing Action Event. We hope that you'll leave the show awestruck and amazed, with a new definition of what it means to dance.

These *Keynotes* provide information and activities that will help you prepare for the performance.

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Find us at www.StateTheatreNJ.org
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The State Theatre, a premier nonprofit venue for the performing arts and entertainment.

Who Is Streb?

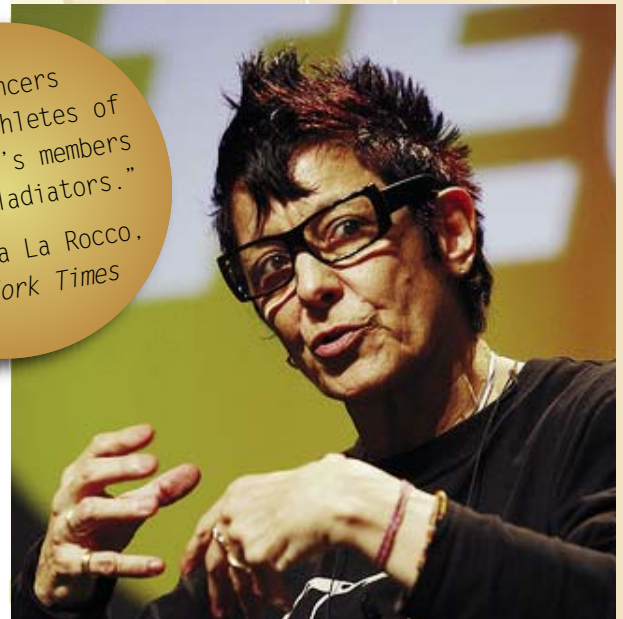
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Once called “the Evel Knievel of dance,” Elizabeth Streb is a MacArthur ‘Genius’ Award-winning choreographer who brings an original and iconoclastic vision to every aspect of her work. Her style, which she calls “PopAction,” combines the disciplines of dance, gymnastics, circus arts, and Hollywood stunt-work. Streb’s creative process draws from the sciences and mathematics, requires the design and construction of beautifully engineered equipment, and demands that her dancers be athletic, fearless, and precise.

Founded in 1979, her company, STREB Extreme Action, works as a collective to probe the nature of movement. They have transformed the dance studio into a laboratory for testing scientific principles on the human body. In the process, they have developed special physical techniques to enable deeper exploration of time, space, air, and aim. Streb believes that true movement invention happens accidentally when strangers are brought together and their diverse ways of moving randomly cross paths. In 2003 she established S.L.A.M. (STREB Lab for Action Mechanics), the company’s studio in Brooklyn, NY. Its door is literally open for the community to come in, watch rehearsals, take classes and learn to fly. S.L.A.M. is a petri dish that encourages new forms of movement to emerge.

Elizabeth Streb and her company have been seen on *Late Night with David Letterman*, NY1, CW11 Morning News, the Don Francisco Show, PBS’s *In the Life*, CBS *Sunday Morning*, CNN’s *Showbiz Today*, NBC’s *Weekend Today*, ABC *Nightly News*, on Nickelodeon and MTV, and on *Larry King Live* debating with Dick Armev about the National Endowment for the Arts.

“If dancers are the athletes of God, Streb’s members are the gladiators.”
—Claudia La Rocco, *New York Times*



“Streb’s work is an exploration of human movement aided by structure, technology and the (seeming) absence of normal, rational fear. Freed from fear, her dancers fly through space, splat against walls, run on walls, slam against floors and each other, dive from high places, smush each other, dangle from wires and get crammed into tiny spaces. The result is multilevel theater that demands attention.”

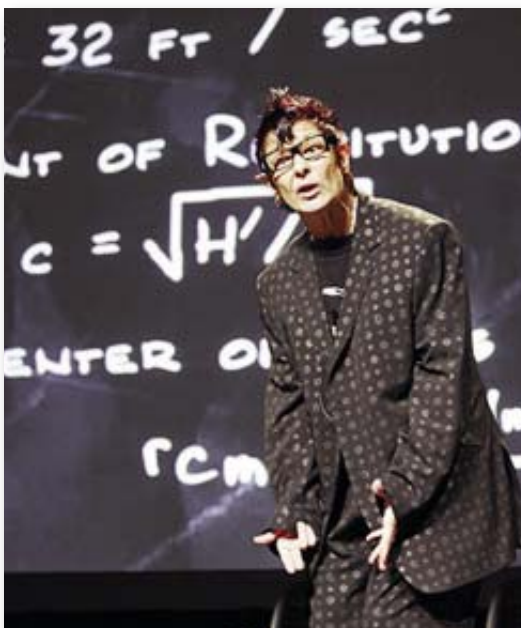
—Whitley Setrakian, *Metro Times*

Streb: Vital Statistics

- A native of Penfield, NY.
- Did not start dancing until age 17.
- Holds a B.S. in modern dance from SUNY Brockport, an M.A. in time and space from NYU, and honorary doctorates from Rhode Island College and SUNY Brockport.
- Among her influences, she cites motorcycle daredevil Evel Knievel, escape artist Harry Houdini, and Annie Edson Taylor, who went over Niagara Falls in a barrel at age 61.
- Was awarded a John D. and Catherine T. MacArthur Foundation ‘Genius’ award in 1997.

“Go to the edge and peer over it. Be willing to get hurt, but not so hurt that you can’t come back again.”

—Elizabeth Streb

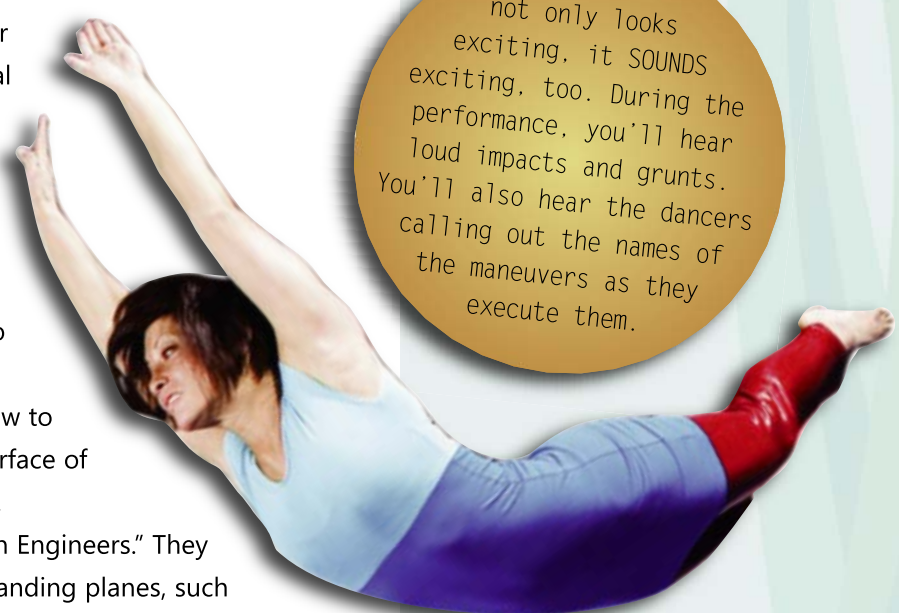


What Is PopAction?

Elizabeth Streb invented the term "PopAction" to describe her unique brand of motion. Like ballet or modern dance, PopAction is based on fundamental movement principles. In addition to learning a specific set of codified positions and movements, however, a Streb dance student must begin by getting oriented in vertical and horizontal space. Then comes the single most important technique in the Streb repertory: how to fall. To be able to perform falls of incredible force without sustaining any injury, the dancers learn how to absorb the impact over the entire front or back surface of the body while surrendering completely to gravity.

Streb's company members are known as "Action Engineers." They experiment with falling on or against a variety of landing planes, such as a Plexiglass wall. Which body part they use for their landing is another area of exploration. "The bottoms of the feet are just one place to land," says Elizabeth Streb. "We land on our backs, stomachs, sides, shins, and shoulders." The dancers also look for new ways of suspending themselves in the air. Streb explains, "It's a whole-body technique, because we're based in the belief that humans can fly. So, you know, you have to get your whole piece of equipment off the ground."

PopAction not only looks exciting, it SOUNDS exciting, too. During the performance, you'll hear loud impacts and grunts. You'll also hear the dancers calling out the names of the maneuvers as they execute them.



Off the Floor and Outside the Box

Streb emphasizes that there are a lot of other ways for a body to be positioned in space besides having feet on the floor. Working on your own in a safe space (no rough surfaces or sharp edges), spend some time exploring different ways your body can make contact with your environment. Look for unexpected combinations of body parts and surfaces (such as jumping up and touching your forearm to the wall). The contact can be very brief.

After you've spent some time experimenting, create a short movement sequence. In your sequence you need to:

- use at least three body parts besides your feet as the point of contact with a surface.
- use at least two surfaces other than the floor as a point of contact with your body.

Find a partner and share your sequences. Then try combining your ideas into a "contact duet." Does having a partner allow you to do some moves you couldn't do on your own?

Action Engineers

Jackie Carlson

Ami Ipapo

Kevin Lindsay

Fabio Tavares

Sarah Donnelly

Cassandre Joseph

Joshua Martinez

Leonardo Giron Torres



Action Events (the program)

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WallRunTurn

STREB's Action Engineers go up against a Plexiglass wall that rotates on a turntable centerstage. The piece plays with the definition of basic concepts such as "base" (of the body) and "floor" (what it's resting on). How many ways different ways can a body impact with a wall?



Crash

Two padded springboards serve as the launching pad for daredevil feats of tumbling, flying, precision timing, and bodily impact.

Polar Wander

Watch out! The intrepid Action Engineers dance with danger in the form of a steel I-beam suspended a foot or so from the floor on a hydraulic cable. They execute perfectly-synchronized moves over, under, and around this heavy metal object as it rotates on its axis and also moves up and down.

Falling

How high can you go? The forces of gravity and the fear of falling take center stage in this piece. As a horizontal TRUSS rises slowly and steadily upward, the performers take turns falling from it onto a mat below. A textbook illustration of how keeping the body in a perfect line will allow it to absorb just about any impact.

TRUSS - a long beam made out of a framework of metal bars

Artificial Gravity (Turning Machine)

The Turning Machine is a deceptively simple floor contraption consisting of an inner circle and an outer "doughnut" that rotate in different directions and at different speeds. The rotation creates forces that pull the bodies in unaccustomed directions, adding several new twists to the team's experiments with different qualities and patterns of movement.

Airlines

In this rare non-impact piece, bodies occupy and explore available space on what can best be described as a "big, funky jungle gym."

Robotics

Elizabeth Streb teamed up with the scientists at MIT to find a robot with a surprising range of movement possibilities and then programmed it to perform her choreography. The tiny mechanical Action Engineer is equipped with a video camera that projects its movements onto a large screen.

Tip

The teeter-totter, a fixture of the children's playground, is reexamined by muscular, gravity-challenged grownups. On STREB's giant, adult-strength rocking device, the movement spectrum is still limited: nowhere to go but up (or down). The piece plays with balance, momentum, and flight.

Gauntlet

As in *Polar Wander*, this piece pits the Action Engineers against large, heavy industrial objects in motion. This time it's a series of cinder blocks swinging from bungee cords. It's truly dancing with danger!



SuperPosition

Think "giant hamster wheel with counterweight." Designed by brothers Noe and Ivan España (the fifth generation of a legendary circus family) and based on their "wheel of death," this spectacular contraption offers limitless possibilities for the Action Engineers to experiment with weight/counterweight/weightlessness, momentum, gravity, centrifugal and centripetal force, and flying.

The Hardware

“I believe humans can fly. Human flying requires equipment—just like the music industry requires instruments. We invent equipment so I can get dancers in the air. I use really skilled dancers, but anyone can do this. I believe anyone can get up off the ground and fly.”

—Elizabeth Streb

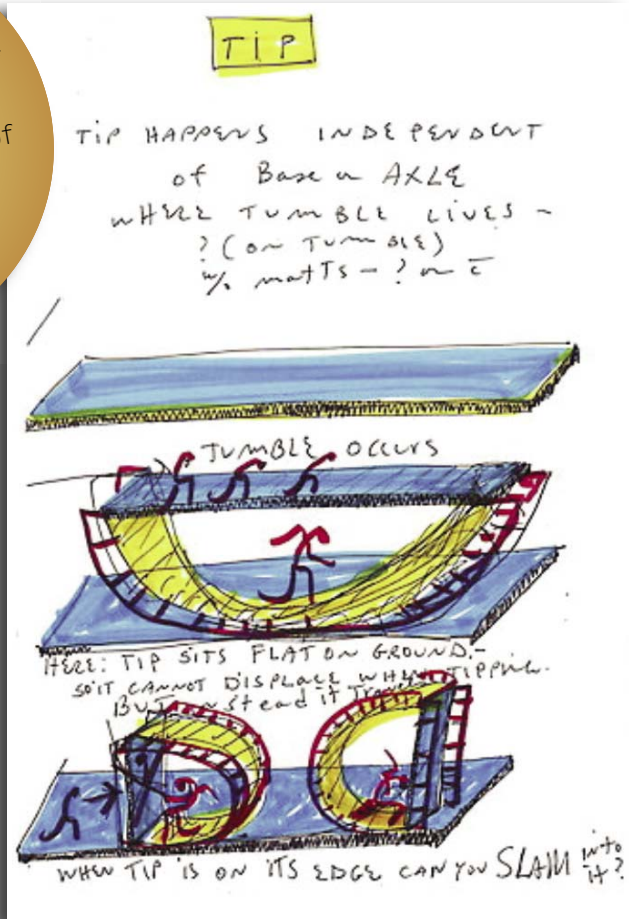
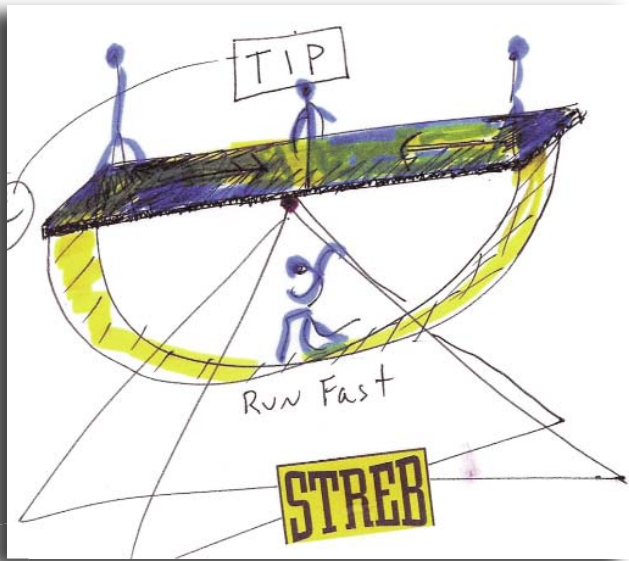
Almost as amazing as the STREB performers themselves is the equipment they use to dangle, leap, balance, swing, spin, bounce, and fly around the stage. Elizabeth Streb loves to invent new machines that will create new forces and new challenges for her “action engineers” to master. Typically, she sketches out her ideas on paper and poses questions about what kinds of movement might be possible. Then she works with leading designers—including engineers from MIT, theater designers, and artists who create circus equipment—to bring her ideas to life.

The vision is Elizabeth Streb's, but it takes a whole team of artists, engineers, technical staff, (and of course, the dancers) working together to make the vision a reality.

The high-tech hardware you'll see in *Invisible Forces* includes the Turning Machine, a special floor made up of two concentric turntables (think of one as the doughnut and the other as the hole). The turntables can rotate independently from each other, moving at different speeds and in opposite directions.

Perhaps the most impressive contraption in the show is a huge wheel and counterweight, which revolves like a Ferris wheel as it spins. The

performers run inside, on top, and around it, leap off and on it, playing with zero-gravity pockets and the rhythms of the revolutions.



Above: Elizabeth Streb's sketches for *Tip*, illustrating different ideas about how the dancers might use the giant teeter-totter.

Left: The Action Engineers performing in *SuperPosition*, which uses a revolving wheel and counterweight.

Moving through Space

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The Elements of Dance

Dance is a series of movements, usually (but not always) performed to music. Dances may be performed solo, in couples, or in groups. Dances can be *choreographed* (the movements planned in advance) or they can be *improvised* (made up on the spot). People from all around the world use dance for different reasons—to express themselves, to pass on their histories, to exercise their bodies, etc. Dances can tell a story or be about nothing in particular.

There are four basic elements that make up every dance: body, energy, space, and time. Each element has its own vocabulary of descriptive words. Here are the four elements you may want to look for when you're watching STREB:

BODY - a dancer uses his or her body by isolating, moving, and coordinating the parts to shape it in space. *Shape* can mean a design made by one body, part(s) of a body, or by the relationship between two or more bodies.

ENERGY - the amount or force of the movement, also sometimes referred to as the *color*, *texture*, or *quality* of the movement. Some words used to describe energy in dance are sharp/smooth, heavy/light, or tense/relaxed.

SPACE - in dance, space can refer to *level* (low, medium, high), *direction* or *pathway* (such as forward, backward, sideways, diagonal, zigzag, turning), and *focus* (straight/curved, open/closed). Movement can be *stationary* (done in place) or *locomotor* (traveling through space). *Spatial pattern* (line, circle, clump, wedge, etc.) refers to the arrangement of bodies in the space.

TIME - a measurable period during which movement or dance occurs. Time implies use of *rhythm* (a repeated pattern of long and short accents), *duration* (how long something lasts), and *tempo* (speed).



The Physics of Dance

Do you know the meaning of these terms? As you watch the performance, see how many instances of these principles you can spot in action.

AXIS - the imaginary line at the very center of a spinning object.

BALANCE - when the weights on either side of a central fulcrum are equal so that the lever is parallel to the ground instead of tilting up or down.

CENTRIFUGAL FORCE - the force that pulls out from the center on a body in circular motion. Centrifugal force increases with acceleration.

CENTRIPETAL FORCE - the force that keeps an object spinning in a circle around a central axis. Centripetal force is the opposite of centrifugal force.

COUNTERWEIGHT - a weight that is used to balance another load (something that must be moved or supported).

GRAVITY - the force exerted by massive objects on other massive objects over a distance. The closer the objects are to each other, the stronger the force of gravity becomes.

IMPACT - a collision between two bodies. The place where the two bodies make contact is the point of impact .

LEVER - a simple machine with a pivot point, called a fulcrum, that lies between the applied force (effort) and the object that is to be moved (load).

MOMENTUM - the mass of a body multiplied by its velocity. A body in motion has more momentum than it does at rest.

ROTATION - when something moves or spins in a circle.

Responding to the Performance

Breaking the Rules

Elizabeth Streb openly challenges many assumptions and traditions that have surrounded dance for centuries, including:

- Dancers and dances should be graceful and beautiful.
- Dance is hard to do, but it's the performer's job to make it look easy and effortless. The best dancers create the illusion that gravity doesn't exist.
- Dance and music go hand-in-hand. The music provides a rhythm for the dancers' movements and complements the idea or mood of the choreography.
- Dance has defined gender roles: the men do the moves requiring strength, aggressiveness, and athleticism, while the women's job is to be pretty, graceful, and delicate.
- Even if it's not telling a story, a dance composition or ballet should have a clear structure, with a beginning, middle, and end, and smooth transitions between the sections.
- In dance, the audience acts as a passive observer. Their job is to sit quietly and attentively until the piece is over.

While you're watching the show, pay attention to whether or not the performance is following these rules. After the show, choose one of the rules above and write a short essay on whether the performance obeyed or ignored the rule. Support your position with specific examples from the performance.



Balancing Act

Working with a partner, explore the concept of counterweight/counterbalance.

- Start with a simple one. Standing face-to-face, hold hands with feet together and lean back slowly, trusting your partner's counterweight to keep you from falling backward.
- Try sitting down back-to-back with feet tucked up. Pressing your backs together, can you both stand up? (This one is pretty difficult.)
- Experiment with different counterbalances that use different parts of the body and different levels (high/medium/low). Pick out your three or four favorite ones and link them together into a movement sequence.
 - After you've mastered some two-person counterbalances, try it in groups of three or four. What happens when you add additional people to the group?



We'd love to hear what you thought of the show.
E-mail us at Education@StateTheatreNJ.org.

Resources

BOOKS:

Ballet & Modern Dance: A Concise History, by Jack Anderson. Princeton Book Company Publishers, 1992

How Everything Works: Making Physics Out of the Ordinary, by Louis A. Bloomfield. Wiley, 2007.

No Fixed Points: Dance in the Twentieth Century, by Nancy Reynolds and Malcolm McCormick. Yale University Press, 2003

Speaking of Dance: Twelve Contemporary Choreographers on Their Craft, by Joyce Morgenroth. Routledge, 2004. Includes a chapter on Elizabeth Streb.

VIDEO:

You'll find lots of STREB videos on [YouTube.com](http://www.youtube.com) and on the company's website.

WEBSITES:

The official STREB website
www.streb.org

They also have a Facebook page.
www.facebook.com

Dance New Jersey, a key resource for dance in the Garden State
www.dancenj.org

MIT Media Lab
www.media.mit.edu

At [Physics.org](http://www.physics.org), find interactive games and websites that help explain concepts in physics, learn about careers in physics, ask questions, and more.
www.physics.org/

Eric Weisstein's World of Physics is an online encyclopedia of physics.
<http://scienceworld.wolfram.com/physics>



Breaking Some (But Not All) of the Rules of Theater Etiquette

If you drop in for a performance or rehearsal at Streb's S.L.A.M. space in Brooklyn, the staff there may inform you that it's okay to use your cell phone, talk to the people sitting around you, get out of your seat, and even eat your dinner while you're watching. At the State Theatre performance, the rules will be a little looser than normal...but not quite as loose as they are at S.L.A.M.! We do expect you to turn off your cell phone, iPod, electronic games, etc. and keep them off during the show. We think that you'll be so captivated by the performance, that you'll want to stay in your seat until intermission and not spend too much time in conversation with the people around you. Please feel free to cheer and applaud as loudly as you want during the show!