Typically we define modern yoga as slow fluid movement or stillness coordinated with breath and these days it is chiefly done for greater mobility, strength, integration, vitality, equanimity and the capacity to manage the vicissitudes of life. For a practice is to be sustainable it has to be applicable and translatable to real life situations, positions and skills. If we want to inoculate ourselves against injury and feel more confident, we must train with as much variety as possible and we must train input systems such as visual and vestibular systems, not just muscles, not just proprioception. If we want to make the most impact in the bodies and lives of our students and selves alike, to offer the highest chance at efficacy we will benefit from learning more about and addressing how the nervous system works, changes, improves and adapts. Popular practices utilize far too narrow a repertoire of movement and curriculum and I wonder why are we so attached to what a small handful of gentlemen from India with robust marketing agendas developed in the early 20th century? Why have their ideas endured when none of them had the knowledge or education we have today in fields such as biomechanics kinesiology psychology, neurology? The time has come to move away from a (patriarchal) pedagogical model that (potentially) undermines the wisdom and authority of our own unique bodies

Perhaps a big reason why yoga asana is appealing for so many people is for the common aspects that make it less threatening than other forms of training or sport: isometric holding and linear movements. (The limitation with this factor is that some people will need to progress into other shapes of movement once they have mastered this) Slow and non-varied pace. (it is good to train various speeds and paces however to keep our brains in tip-top shape) Non-competitive. Contemplative. Body-weight only. (this may be enough for some or enough at first but there is great benefit from adding external weight) Ideally it helps us practice Down-regulating. It cultivates an inward focus but not everyone will benefit from this and in fact it may exacerbate certain conditions. Clear rules can be comforting but the reason for them can be misunderstood as being concerned with safety and this can contribute to anxiety. Yoga if it doesn't intimidate, appeals our cultural openness-bias rooted firmly in our lexicon- loose vs tight, flexible vs rigid. open vs stiff. Obviously we don't want to feel tight/stiff/restricted and so we speculate that loose, flexible and open is preferable but if we listen for the subtextual true meaning behind these ideals, it's that we want to feel at ease in our skin, able to move how and when and where we want. We want quantity and quality of movement, unfettered, without pain and restriction. We even may assign or glean spiritual meaning from an open, flexible body and conflate it with progressive, liberal, enlightened and evolved states of being. Flexible, open bodies are exalted and idealized; they are the ones who get onto the covers of

yoga magazines and garner followers on Instagram. But do we understand how they get to be that way and is it actually better or might flexibility be more aesthetically pleasing than practical and functional and might it even lead to injury and instability? If we now know that our nervous system is hierarchically determinative then shouldn't we be assessing and training it? What does that mean exactly?

The more we understand more about how we work on anatomical, biomechanical and neurological levels, the better equipped we are to choose and assess the best methods to achieve desired results. Passive stretching and yoga with an internal focus may be very helpful for some while hand-eye coordination and mobility training with an external focus may be much more effective for another. One of the most powerful concepts we can digest as movement teachers and practitioners alike is that there is more than one way/method/approach to achieve a desired result. Yoga has in its recent history been marketed as a panacea and/or something entirely harmless and universally beneficial. Some aspects of it may be widely appealing such as isometric training while others such as its very internal focus and certain styles and shapes of movement or approach to breath aren't going to help everyone and in fact could make some people actually feel and perform worse. This is not to present any bias toward one modality or another, but to zoom out and strive to come from a more knowledgable, informed and big-picture perspective. If we understand how the nervous system works by taking in input and producing output, we can more effectively determine why a person might feel "tight", restricted, disconnected and uncoordinated and intelligently choose what tools and methods will be most effective to improve.

The quality and type of sensory information we take in is fundamentally important/determinative to how we move and feel, because sensing in all its forms precedes movement. Improving the function of the visual system and vestibular system may for example increase mobility because it targets one of the fundamental systems by which we interact with the world and thereby potentially takes the breaks off (tension and restriction on a systemic level. We could think of this phenomenon as reducing a level of threat that may be percolating all the way down to tissue level. The more we understand from a systems, macroscopic, conceptual and global perspective how we operate, the better equipped we'll be to teach, guide and facilitate the most effective approaches to improvement.

1. FEEL
Sensory info before motor output

The nervous system is designed to take in information from both external and internal sources, interpret it and then produce an output (movement, action, feelings, even pain is considered an output). Most modalities/approaches to movement education don't take this fact into account and are training output only. The challenge is that majority of people have blind spots in their body and difficulty accessing movement and we wish we knew more about how to help. Typical open chain yoga asana provide little in the way of external feedback and so one solution is to provide increased sensation and connection to the mechanisms of perception by using props: blocks, balls, bands, the wall, the floor, blankets. If we can feel, see and sense more keenly, taking information IN more completely/effectively then we could produce more and better movement.

One of the largest organs we have as you know is the skin, and we can potentially improve motor output by providing information to it via touch. A simple approach to this concept is warming up/preparing for practice with a whole body skin-level sensory warm up from head to feet; scrubbing, tapping, using therapy balls paying a bit extra attention to joints and areas of stiffness in order to provide increased proprioceptive information.

You can think of this as improving your brain's sense or map of your body- a way to clarify the boundaries and borders of your body in space, to both orient and integrate and to increase sensation in order to produce more quality movement. Sensory Before Motor describes the definition of our nervous system, both central and peripheral: we take in information, process and interpret it, and then move in response to what we sense. By understanding with greater clarity how and why people face the particular challenges with which they are coming to us for help, we can potentially help them more quickly and more effectively.

The problem with most movement education approaches is that we're training output only without considering or training input. How might we do this: By training the visual and vestibular systems in addition to proprioception. By understanding with greater clarity how and why people face the particular challenges with which they are coming to us for help, we can potentially help them more quickly and more effectively.

2 SEE
Vision is essential (and the difference between vision and eyesight)

For most people the idea of training vision conjures the doctor's letter chart for testing visual clarity/acuity, but vision encompasses far more than that one

element. Only 10% of eyesight happens at the eye itself and beyond that it's a brain event, a system intimately tied into balance, muscle recruitment, posture and movement in general. The visual system is connected to the vestibular system and is part of the peripheral and central nervous system by way of cranial nerves and the vestibulospinal tract and it is highly relevant to teaching/training and assessing movement. Outside of specialized fields like occupational and vision therapy and elite athletic training or specific conditions like vertigo, brain injury and childhood strabismus, the fitness industry and general public has had little to no exposure to the concept and benefits of training vision.

1. **Eye Tracking (pursuits)** – the ability of our eyes to follow/track moving targets at any speed
2. **Eye Focusing/Accommodation** – The skill to change focus quickly and accurately from one distance to another.
3. **Saccades:** the ability of our eyes to make accurate jumps as we change targets
4. **Peripheral Vision** –
5. binoculaity/teaming (Also con**vergence/divergence) Flexibility and Stamina)**– is the ability to keep both eyes working together in unison even under high speed, physically stressful situations and differing environments. Without functional teaming there can be symptoms as wide-ranging as headaches, fatigue, poor concentration, gait dysfunction, reduced coordination, potential for injury, postural dysfunction, even mood disturbance.
6. **Depth Perception** – necessary for quickly and accurately judging the distance and speed of objects moving toward and away from you.
7. **Imagery** – the ability to picture events with your "mind's eye" and your "virtual proprioception".
8. **Sequencing** – the ability to correctly see and "put in line" a series of stimuli and the ability to organize visual information which is a key skill to understanding and reacting to the events that occur in a sporting environment. Sequencing plays a role in virtually every sport but also in just navigating a busy parking lot or hiking on a trail- every day life stuff.
9. **Eye-Hand & Eye-Foot Coordination** – These crucial interactions comprise the basis of athletic skill but also translate to life skills. (If you don't play a sport and have the desire to improve your performance does this still apply to you?) It does, because coordination is another foundational quality that undergirds The ability to take in correct and appropriate visual information and translate it into necessary body movements is the essence of this skill set.

BALANCE

Balance

The concert of balance is a foundational skill with a holistic focus lacking in the typical approach to movement training. If our brain's number one imperative is survival reliant on predictive mechanisms to the determine safety of environment, then we need to consider how these satellite systems composing the brain's GPS, are functioning. Think of the whole body tension you feel when nearly avoiding a fall and imagine that carrying over into every day life on a subconscious level if balance is compromised. What if the tension people are feeling and trying to mitigate by stretching and yoga could be reduced by improving mechanisms of balance? What if balance and stability aren't exactly the same thing and both deserve distinguishing and addressing?

Balance is a triad of skills including function of the inner ear (vestibular), vision and proprioception. If we're not including head and eye movement in our training then we're not involving all of our balance mechanisms. The visual and vestibular systems are deeply integrated and have far more bearing on a person's mobility, strength, balance and performance than fitness industries lead us to believe. In the setting of yoga we are training stability more often than balance because we're fixing our gaze on one point without involving head and eye movement. There are many ways we can seamlessly incorporate more vestibular/visual stimulation into practice and to ensure it translates to every day life by providing the skills to prevent falls and effectively navigate the world around us.

Our brains are built for protection and survival and if our satellite systems aren't working well, or are compromised we may have experience restricted mobility, movement repertoire, strength and general function. We may fatigue more easily, concentrate less effectively. Balance is far reaching and fundamental, a foundational ability.

CUE

External VS internal cues

Many people are coming to yoga (or other modalities) to increase their flexibility and we know now that this is determined by far more than how much or often a person stretches. We know genetics plays a huge role in flexibility, as well the state of the nervous system and level of stress and threat. We know that passive stretching doesn't always achieve the results and we know that in most yoga

teacher trainings advise us to cue and instruct movement based on internal sensations and muscle engagement, leading us as teachers to feel frustrated or at a loss when our students aren't able to access movement or aren't seeing significant and lasting change form what we're offering. (We also typically offer a great deal of auditory information which may be difficult to follow, especially in light of the fact that a minority of the population learns this way.) Doing and performing by feel/internal focus contradicts how we naturally move. Imagine how a baby learns motor skills in dialogue with the world around them- learning to hold up the head to see and hear, learning to transport the body by rolling and crawling, learning to sit up to reach and feel, learning about the objects by feeling them with hands, lips and tongue and culminating with the ability to walk and fully engage with the external world. If we want to help our students change their bodies, we can incorporate offering more external cues and feedback to simulate how we naturally move and learn, outside of the somewhat artificial rubric of group exercise

"Every movement has a goal." - Dr. Eric Cobb
Internal cues such as engaging this or that body part or moving according to feeling one's body, especially in context of open chain positions with no clear goal and nothing to complete the "circuit" or provide external feedback is something endemic to the fitness industry. In real life and developmentally our movements have purpose be they utilitarian, reflexive, creative- we move in response to our environment with clear (voluntary and involuntarily) objectives. Using an internal focus is not the way our brain works because if every movement has a goal, our brain is designed to operate in the external, not the internal world. People who always have an internal focus on their own movement, especially over time, have potentially more problems with mobility/flexibility and don't perform as well, particularly under stress. With this in mind, a practice such as yoga is employing entirely internal focus for movements which could be not only confusing but also thwart efforts for change and even make mobility worse. If we are to be effective mobility teachers/facilitators, we must update our approach in this critical way and ask how can we provide external focus, goal-oriented cueing with verbal direction, props, etc to allow for less frustration and better and faster results in meeting goals and greater motor learning.

If we want to help our students change their bodies, we can incorporate offering more external cues and feedback to simulate how we naturally move and learn, outside of the somewhat artificial rubric of group exercise

The brain loves goals and targets outside rather than inside the body to guide movement, so we'll be better equipped to help people move better if we encourage focusing on targets to reach for, move against and focus on, anywhere we lack mobility or flexibility. In this way we can potentially see significant, noticeable improvement. Weights, balls, blocks,resistance bands, the floor the walls provide ways to increase the clarity and scope of our brain's sensorimotor maps, providing better body ownership, integration, physical agency, awareness and range of motion.

SHAPE

Shape continuum: Circular/infinite VS linear movements and multi-planar
Many fitness modalities from yoga to weightlifting employ linear and single plane movements. This isn't necessarily a bad thing and in fact much research has been done on the efficacy of isometric (no movement) training especially in rehabilitation settings. But it would help to know how, why and when to choose the shapes we do by looking at them on a continuum. Isometric loading will present the least amount of challenge for cognitive processing, coordination and joint range of motion/mobility/strength. We can think of movements also in terms of "threat" or challenge level. On the continuum the progression is: isometric, then linear, circular and figure-eight or complex movements. Knowing this allows us to regress or progress movements and provides a destination or goal by training more parts, more positions, more planes. We know that typical asana is aligned and linear. It brings the purpose of this into question as it typically offers alignment/position and cueing the purpose of safety and protection when it's also likely rooted in aesthetic and visual preferences. We can progress our asana by training in more positions and moving in more ways, in order to be holistically strong. This means starting with isometric linear movement as needed and then progressing to circular, organic shapes and lines and multiple directions and planes. We can regress or progress what we teach and how we train armed with this knowledge: the more rehabilitative the setting, the more compromised the body, the more preferable isometric and linear movements. To add challenge, we can add complex movement patterns, directional challenges moving forward, backward and side to side and turning/spinning, working more in lateral and sagittal planes and adding level changes and variety to provide stimulation to the vestibular and visual systems which are under-utilized due to a lifestyle with a lot of time spent indoors, in tight focus and on screens.