

Unilateral Loading, Exercise Isolation, Immobilization, and Rehabilitation

*By Ken Hutchins
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Michele Mingoia In June of 1988, I met Michele Mingoia and began training her with the application of SuperSlow® Protocol and Philosophy. She was very sensitive regarding her lower back and iliosacral area. She was not in chronic or acute pain, but was verbally very demanding and admonishing to me regarding any application of uneven loads to this area. I considered her attitude about this to be extreme and ridiculously unnecessary.

Most immediately concerning Michele was the application of the hip belt on the Nautilus® Multi Exercise machine when loaded to perform the Heel Raise exercise. She was almost threatening with her instructions for me to ensure that the belt would not slip laterally after loading or tend to slip with an imbalanced load on her pelvis. I complied and tried to conceal my true feeling that she was overprotective. Occasionally, I explained to her that SuperSlow was so low-force as compared to the haphazard approaches that postural concerns were overrated as a concern for injury. I interpreted her concerns as being due to taking postural admonishments out of the context of the typical gym behavior, which again, is dangerous mostly because of excessive acceleration.

I failed to understand that Michele's actual concerns were due to a recent back injury while using the Nautilus Duo-Poly Hip&Back (Hip Extension) machine and her chiropractor's instructions not to perform unilaterally loaded exercises.

Michele has a master's degree in engineering from Rensselaer Polytechnic Institute. She completely understood my stance on the acceleration issue, as most others would not have. But she did not cave into my argument. I was perplexed and eventually associated her unilateral fears with some kind of emotional paranoia.

Norton Baker At this same time in my career I was embroiled in an ongoing academic argument with a local Orlando orthopedic surgeon named Norton Baker, MD. Dr. Baker argued against the Nautilus Duo-Poly Hip&Back Machine. He claimed that it led to back irritation and/or injuries. I directly opposed his view, stating that his hang-up about the exercise was due to the problem of acceleration, not the split-legged movement involved. Dr Baker would not concede. And I remained frustrated with my adamant perspective on the problem. It is, perhaps, somewhat relevant to note that I had spent many hours fitting one of these machines with bearings and making it more suitable for a properly slow speed of movement. Since Dr. Baker had no access to such a retrofitted machine nor had experience with SuperSlow, I had to conclude that he was dealing with incomplete information.

Paradoxically, I had already at that time condemned the Nautilus Duo Leg Press as well as the Duo Squat because of uneven loading on the pelvis and spine, however, I did distinguish these affronts in my mind as a compressive force generated from the shoulders.

My First Fateful Injury In 1990, the owner of the facility where I worked installed a Pacific® Multi-Station machine. Along with other stations, it provided a squat movement. This was merely a horseshoe-shaped, padded movement arm that rested on the subject's shoulders at one end as the opposite end articulated on the frame of the machine. The movement arm drove a cable that attached to a weight stack. This station was placed over a platform that was elevated about four inches on which a Heel Raise exercise for the calves could also be performed.

I liked the squat station, because it afforded me an ideal way to do my then-most-favorite exercise—one-legged squats. I ignored the weight stack, using the movement arm merely for balance. With this I could hold one leg slightly forward enough to clear the floor as I put extreme concentration into the opposite buttocks and leg. My goal was to achieve the ultimate isolation of one side, since I then required no attention for balance as long as I merely held on. The movement arm guided my movement. I just supplied the force from the correct part of my body.

Eventually, I achieved my goal. I learned to completely relax one side of my pelvic musculature during maximum contraction of the opposite side. Result: Totally debilitating spasm of the entire lower spine.

I was incapacitated for about four days, crawling around on my hands and knees, able to stand only after pulling myself up by walls and furniture and requiring about 15 minutes to become fully erect. After attaining a standing position, it required most of an hour to walk a block. I was in disbelief that I had done this to myself. It also forced me to reconsider my attitudes towards isolation, especially unilateral isolation.

Befuddled Therefore, Michele was not merely emotionally paranoid about this issue. It had a real physical basis. And I had lost, in a big way, my argument with Dr. Baker. I had turned the corner, but much of this still remained a mystery to me. I had to figure this out. It begged many questions.

What about the uneven pelvic loading that occurs when walking, our most basic mode of transportation, and running? What about bicycle pedaling and others activities that we take for granted? What about our beliefs regarding so-called *isolation*? We will delve into these topics later in this article.

After about ten days, my back was normal and I could resume training—avoiding the one-legged squats, of course. In fact, I was, by then, adamantly opposed to one-sided exercises of any kind. I even fired one of my best trainers shortly afterwards for applying manually-resisted, one-legged standing leg curls to a woman subject. He was not ignorant of my new and unrelenting stance on this subject.

Even so, I still considered Michele's fear of uneven pelvic loading to be emotionally extreme. After all, what I had previously performed with the one-legged squats was physically extreme. I still did not buy into the idea that something so slight as a cocked weight belt could do the same thing. Apparently, I required a little more education. And I was destined to get it.

One Sunday afternoon in 1997, David Landau was visiting. He and I were having a casual conversation in the gym. As I was expounding on some thought that required some concentration, I was balancing upright on one foot atop the leg of a weight tree. The leg was only 2 inches off the floor, and I would balance on it, then relax, then lose my balance and then step back up on one leg and foot and repeat the process. After several minutes of this, my lower back locked up. I knew instantly that I was in trouble, and that the situation might correct if treated quickly. The longer it might go untreated, the more the muscles would go into an unrelenting spasm.

I knew that I could not get to a chiropractor instantly, but I had one hope. Unlike the first injury with the one-legged squats, I now had the *Linear Spine*[®] *Flexion* machine. Fortunately, its greatest effect is with the lower spine and pelvis. It was just possible that it would correct the imbalance that I had passively caused and quell the muscles that were just beginning to spasm dramatically. It worked. And I sighed a big relief. David did not seem to appreciate what I had experienced. He just kept talking throughout the entire ordeal.

This experience taught me that even I was susceptible to what Michele feared. It also taught me that mere passive, imbalanced loading to the pelvis could lead to crippling results with enough load, time under load, and individual limitations.

At about this time, I had become friends with several chiropractors, physical therapists, and osteopaths. They chanted all kinds of gibberish that my allopathic influences scoffed at. Although I had heard them warn of imbalanced loading before, I was now taking the subject more seriously. Education and improvements in any field depend on a progression of linguistic distinctions as well as an enhanced sensitivity to subtleties.

Isolation Isolation is often a mirage. In exercise we conceive and speak of isolation as though it is an all or none condition. In reality, isolation is a matter of degree. The only way to achieve absolute isolation of your right arm, for instance, is to amputate it. Even a completely casted arm receives a blood supply, can feel, and can move somewhat inside the cast.

In my mind the most isolatory exercise is a properly performed Leg (knee) Extension. Only here can we most completely tie down the upper legs and immobilize the remainder of the body as the lower legs go through their excursion. On the other hand, I have both experienced and witnessed all-out maximum leg extension by subjects

who were highly proficient at relaxing the extraneous body parts only to have their abdominals go into spasm, since these musculatures are required to stabilize the pelvis internally no matter how secure the femurs are belted down to the seat. So much for isolation.

Please don't misunderstand. I remain devoted to the idea that we should strive to isolate the major parts of the body during exercise. It is just that we must appreciate that it has practical limits of usefulness and safety.

For the typical subject who has no major joint debilities or dysfunctional limbs, I—for the reasons explained above in my personal narrative—am vehemently opposed to performing, instructing, or permitting unilaterally loaded movement. There is no good reason to do this and a good chance that such will lead to lockup of the pelvic stabilizers—perhaps most likely with those subjects who can isolate best.

In the case of extremity rehabilitation, however, we have a different situation. We often see a greatly disparate strength between the right and left legs or arms. In such cases, unilaterally loaded movements are sometimes the only option. Hopefully, an exercise machine is available for knee extension or knee flexion or even leg press, to contain the pelvis in a seat. This makes the unilateral load less offensive if it has to be used. But when the subject becomes equaled out enough to resume even loading—even when some disparity still exists—it should be immediately and exclusively embraced with those exercises that provide it.

In other cases involving a need to perform work in something such as an internal or external shoulder exercise or an exercise for the hands or feet during rehabilitation, there is no other approach other than unilateralism.

Home Exercises Some general fitness book writers try to provide exercises that can be performed at home with little or no equipment. It is often and incorrectly concluded that it is necessary to compromise the rules against unilateral loading because of a lack of exercises for the lower body. One deficit that quickly comes to mind is Leg Curl. Another is Hip Adduction. Another is Hip Abduction. These are easily solved with a chair, a belt, a pillow, and Timed Static Contraction (TSC) protocol.

Timed Static Contraction is merely an isometric contraction that is continuously applied for two minutes in its most standardized application. The first minute is performed with an *approximate moderate effort*. The next 30 seconds is elevated to an effort of *almost hard as you dare* and the last 30 seconds *as hard as you dare*. If SuperSlow is safer than stepping off a curb to go to your car, this protocol is safer than lying in bed.

For Hip Adduction, sit upright in a straight chair and squeeze a pillow between your legs.

For Hip Abduction, sit upright in a straight chair and push outwards against a belt tied around your lower thighs.

For Leg Curl (hamstrings), sit in a straight chair and pull backwards with both heels against some stationary object.

Other Related Topics As already mentioned, this subject begs the question of walking. After all, walking involves unilateral loading—right? But does walking normally involve an attempt at an intense contraction of one leg for a prolonged bout as the other side is asked to disinvolve? And note that walking, even running, is performed with a minimum range of motion to the knees and hips as compare to the much larger range we experience in a squat or most other exercises. At least with walking, the imbalance is brief, constantly changing, not intense, and with slight angular deviation, keeping the imbalanced loading to a minimum.

Of course, there are exceptions to this walking model. And I believe that it can be shown by experts other than me that as load magnitude, angular deviation, time under load, and contraction intensity increases, so does pelvic trauma, especially in older, more compromised subjects—exactly such populations as we expect to address with SuperSlow protocol.

It should be no surprise to most who read this that I am opposed to the practice of lunges as an exercise approach. This is often the specific target of my slams against split functions. I will also add that Doug McGuff, MD, likes to point out that many women are misled into doing lunges because they falsely believe such works their buttocks better, while what they actually feel is their muscles being impinged between the bones.

Not exactly related to the topic of unilateral loading is the observation I once made from the reception area of a large health club. I was sitting where I could view into the gym almost perfectly aligned with a row of 30 exercise bicycles. It was a quiet Saturday morning and only one person—a middle-aged woman—was slowly pedaling on a bike as she read her morning paper. What caught my eye was the fact that her upper body was motionless while her pelvis rocked side to side with each pedal stroke. I remarked to my companion that her lower spine was receiving the brunt of the wear—the first insults of arthritis to come later, perhaps.

Earlier History In earlier years, I helped Ellington Darden write exercise instructional materials including some exercises that involve unilateral loading. And now, many of these ideas are used in a multitude of books by other authors. I now strongly believe that such unilateral loading is a direct cause of back debility that can cost people lost work hours, pain, and sometimes their livelihoods. And being aware of this association, it is therefore unethical for me to condone, allow, perform, illustrate, or acquiesce to such exercises. It is also my duty to expose this practice as what, in my opinion, constitutes malpractice.

I do understand that most exercise instructors do not possess my experiences, and that they are naturally and innocently ignorant of the consequences of what they may dismiss as ridiculous as I was once guilty. Is it necessary for all instructors to make my mistakes in order to learn? I would hope that progression also means to become more refined in what we instruct. You might believe that true concern for the safety of the public would be marked by eagerness to learn my concerns.

Instead, I have been threatened with lawsuit from one former Master, who apparently sees my concern as jeopardy of his precious book sales. Such threats are ostensibly made to defend and/or protect his character while putting a chill on true academic debate. I will not be deterred by such bluster and welcome some real discourse on both sides of this issue.

And regardless of the outcome of this issue, presently I deem unilaterally loaded exercise to be off limits to any SuperSlow Licensed facilities. New licensing contracts are being phased in to reflect my feelings on this. After all, I am the developer and sole owner of the trademark and I, alone, have the right to say what it is and what it is not. I should not have to iterate such arrogance on my part if it were not for some outrageous personalities suggesting that I don't have that right. It remains critically important that SuperSlow remains untainted with such bad ideas that the general public might later associate.

Although this is the first writing that is thorough with this subject, it is not the first time I have expressed these concerns or made allowances for them.

- Note that in the *Alligator Machines* article I feature a competitor's standing leg curl machine as a wrong approach to loading the lower trunk. Sure, a machine of this design will save space, but I believe that such an exercise to be malpractice.
- The SuperSlow Masters are strongly cautioned against unilateral exercises. The subject is one of the last and most dramatic points that I make on their Level-II practical exam. It comes under the heading checked as "split functions." With this I explain to them my entire history of the subject as I do in this article. This has been done for every Level II since December, 1999. Previously processed Level-II subjects may or may not have been availed of this information, so they were not *in the loop*. I have openly and repeatedly condemned the independent movement arms designed into some exercise equipment. Part of this condemnation is based on the learning and competency confusion that it fosters, but is also based on my fears of unilateral loading or yet merely imbalanced loading. And although this concern of mine is mostly voiced toward the pelvis, I am equally wary of what it portends for the shoulder girdle thus affecting the neck. I personally suffer from debilitating neck problems and have developed equipment and methods because of this experience. This makes me more sensitive to these problems than those who do not possess this experience.

- I am now making and using static exercise machines. Timed Static Contraction is the most safe way to exercise, one reason of many being that unilateral loading can be best controlled and minimized, if it truly must be used.
- We explain to subjects as we illustrate on the *SuperSlow* instructional videos that they are to enter and exit equipment with even loading between both legs. A common example of this is the exiting of the Leg Press. Also we often relate this to back patients who must be cautioned not to step into or out of their car. They must teach themselves to first sit into the car seat and then to rotate both legs simultaneously into the car. The same goes for getting into bed and some other daily functions.

Anyone who has perused my writings knows that I don't respect what the other agencies like the *American Council on Exercise* does, prints, allows or suggests in regard to unilateral loading—or anything else under the sun. I have made a career making my opinion known that such authoritative groups are bastions of mediocrity.

By the way, a recent *Readers Digest* article condemning the “hype” about slow motion exercise by a spokesperson for ACE stated that Aerobics exercise burns calories while strength exercise burns fat. Can you imagine anything more uneducated?

And how could most fitness book authors associated with the *American Council on Exercise* or the *American College of Sports Medicine* be sensitive about such subjects as unilateral loading. If they were, it would surprise me greatly. They simply do not possess the necessary grounding to be sensitive to the problem. Being insensitive to the problem, they can only be criticized as being ignorant and unsophisticated. And if they are indeed aware of the problem—which I highly doubt—then they are being unethical; they are skirting the issue to sell their wares. I am interested only in progressing exercise philosophy and practice, not in its apparent devolvement or bureaucratic stagnation.

And to cite various references and historical uses of unilateral loading in the exercise field as proof of its acceptance also lends another observation: True leaders in any field do not follow the herd. Would-be leaders, on the other hand, try to approximate where the herd is already going so that they can then put themselves in front of it.

And contrary to what some of my critics claim, I have no vested interest in these things. Unlike many people in many endeavors, I seek no legacy or historical marker. All that is pointless. I enjoy pure experimentation for my personal use first and my customers second. If I find that what I do or sell is worthless or dangerous, I abandon it, regardless of what it costs me to do so.

So there you have it—fitness gurus who promote unilateral exercises fall into one of two categories: innocently ignorant or unethical. I see no other possibilities.

Unqualified unilateral loading by SuperSlow instructors is an embarrassment to me. I will strive to distance myself from any instructors who instruct or promote materials condoning unilaterally loaded exercises to the unwary general public.

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