

PUBLISHED 12-28-01 10:00

[http://www.t-nation.com/free\\_online\\_article/sports\\_body\\_training\\_performance/pelvis\\_has\\_left\\_the\\_building](http://www.t-nation.com/free_online_article/sports_body_training_performance/pelvis_has_left_the_building)

King, I., 2001, Pelvis has left the building, t-mag.com, 28 Dec 2001

## Pelvis Has Left the Building!

How pelvic alignment and proper exercise program design  
can keep the injury goblins at bay  
by Ian King

I recently gave a presentation at the 3rd Annual International Weight Training Symposium, in Toronto, Canada, over the weekend of the 16th of November. The convention is hosted by Canadian chiropractor (and certified strength and conditioning specialist, certified personal trainer, and certified all-round good guy) Ken Kinakin and the Society of Weight Training Injury Specialists (SWIS).

This event is fast becoming the premier event of its kind in North America, with scores of presentations covering treatment, training and nutrition. You can check out SWIS at [SWIS.ca](http://SWIS.ca) to get an idea of exactly what you missed this past November if you didn't have the pleasure of attending.

(Editor's note: For more info on the SWIS conference, you can also check out the conference reports submitted by attendees Chris Shugart and John Berardi: [here](#) and/or [here](#))

I have some inside info on next year's event and it's going to be HUGE! There will be tons of strength-training content, so it should be of great value to *T-mag* readers. Ken and I huddled in a (food) booth a few days after this last event and bounced around some ideas as he outlined his plans for 2002. Bigger hotel, bigger program, over 1,000 participants, big men, and big stories are all on slate.

Anyway, back to this year's presentations! I was pretty humbled to be in the speaking program at this event, as most of the speakers had more letters *after* their names than I have *in* mine! And there were guys presenting that it was kinda' difficult not to be in awe of, like Bill Pearl, Bill Kazmier, and Dorian Yates, among others.

So in preparation, not wanting to be outdone on paper, I came up with a really big title for my presentation: "Program design for reduced incidence and severity of spine injuries." In Paul Hogan-speak, you could call it "how to hurt your back less" or something like that! The presentation was categorized as "Introductory" in the program, so I guess they were well aware that my vocabulary is short of long, impressive, clinical terms!

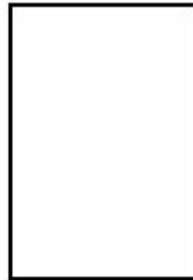
*Pelvis Has Left the Building!*

Anyhow, I'm essentially going to share with you what I covered, although in text it may not translate exactly like it did during the actual presentation! My primary focus was on the lower back, and given that I only had 1 1/2 hours, I preferred to do some depth on a little, than to do a little depth on a lot.

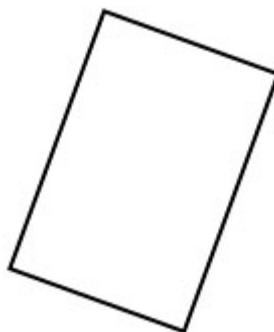
The Game Plan

As you might guess, my theory on reducing the incidence of lower-back injury through program design is really complex, requiring an extensive grasp of the scientific and anatomical literature, and the ability to draw a rectangle. Okay, if you're not an expert, you'll probably do just fine if you can draw the rectangle, so let's start with that.

I want you to draw a rectangle on a piece of paper. The base should be about 1/2 inch long and the sides about 1-inch high. The rectangle should be placed on edge as shown here:

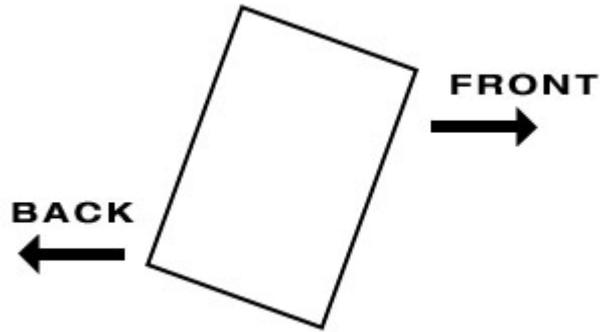


Draw this box again with a slight tilt, e.g. 15-20 degrees. Imagine that this "box" is your pelvis. See? This is really complex, high-powered vernacular!



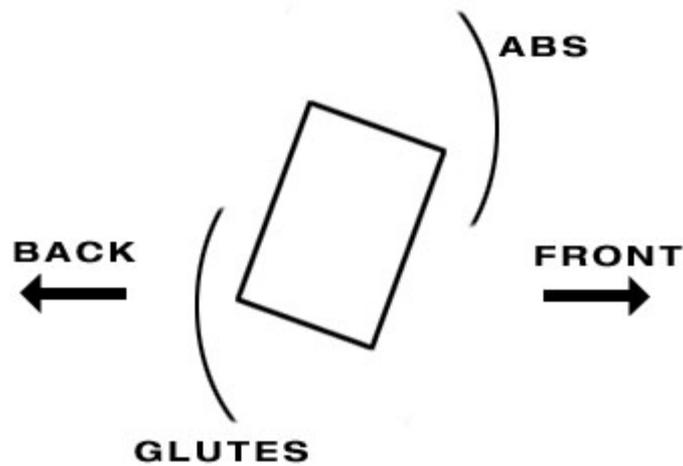
Imagine that the side that has the top end leaning slightly forward is the front of the body and the side that has the bottom end pointing down and slightly back is the back of the body. You can even place directional arrows to indicate this:

*Pelvis Has Left the Building!*



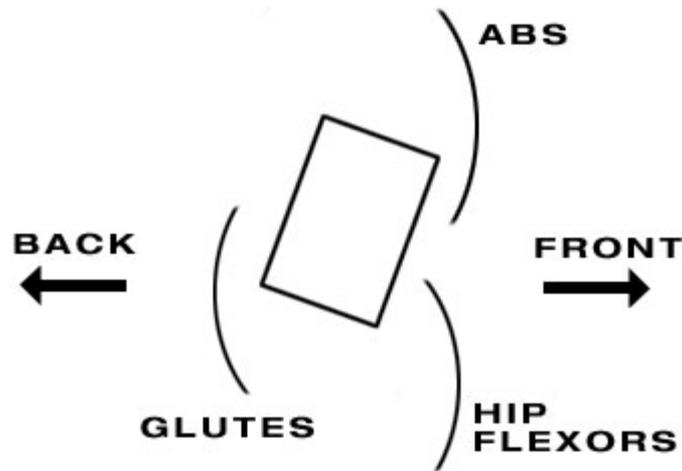
Now let's delve into the really complex anatomy. Using a different color pen, I want you to draw two half circles — one connecting the top front of the box to the area above it, and the second one connecting the bottom rear of the box to the area below it.

And while we're at it, let's label these arcs. We'll call the top one "abs" and the lower one "glutes." Now before you go reaching for those anatomy texts for technical correctness, forget it! This is a simple plan, so work with me!



Now one more arc. Grab a different color pen to do this one. Draw this one to the front bottom end of the box to connect it to the area below it. This line represents the hip flexors.

*Pelvis Has Left the Building!*



Here comes the crux of my presentation (and I'll tie in all the cute little rectangles very soon): if the pelvis is allowed to tilt forward too much, it can be bad news; bad news because this is when you're more likely to suffer issues including any or all of the following:

- a. Pain in the lower back
- b. Pain referred down the legs
- c. Reduced power output in a leg
- d. Torn hamstring, quad, calf, groin or hernia

And if you haven't experienced at least one of the above, you probably put a check in the "no" box of the Kinsey sex survey that asks whether you've ever personally pleased yourself.

This pain is usually a result of the nerves exiting from the lower spine being pinched (by excess forward rotation), causing neural inhibition in some cases (reduced firing) and neural excitation (over firing) in others. A muscle with higher "tone" than desired due to excessive firing will cause you grief, more so with an increased speed of movement (e.g. hamstrings in sprinting) and increased volume (lots of sets or lots of running).

The solution? Keep the "box" (pelvis) relatively vertical (minimizing anterior rotation), by keeping the hip flexors long and the abdominals and gluteals tight (or somewhat shortened)! Simple.

Now the scene has been set and you are wondering what I was doing at this scientific type conference.... (well so was I!) Seriously, if you're feeling a little let down by the absence of big, impressive words and concepts, I can suggest alternative reading, e.g. *The Proceedings of the Fourth Interdisciplinary World Congress on Low Back and Pelvis Pain*, Montreal, Canada, November 8-10, 2001 (book prepared by the European Conference Organisers).

My plan may appear simple, but judging by the incidence of lower-back pain and related symptoms, either this plan is off track, or people are not on track to implement it. I suspect the latter, for the most part.

What I want you to do now is write down your training program, exercises only. Use three columns for a 3-day cycle, or 2 or 4 columns for a 2 or 4-day cycle. Be honest, and do this before reading any further.

(Editor's note: This may seem like a pain, but if you really want to get something out of this article, I recommend that you follow Ian's instructions and write down your program. At best, you'll learn something about designing more effective programs; at worst, you'll have blown 3 minutes of your precious time.)

### Quads vs. Glutes

After you've written down your training program, divide all your lower body exercises simplistically into quad dominant (if the trunk is vertical or flexed less than 45 degrees) and hip dominant (where the trunk is flexed at 45 degrees or further).

Which type of movement was done first? If you're like 99.99% of the strength training population, you did a quad-dominant exercise first. Remember this: the exercise done *first* in the day or first in the week gets a superior result. This is the little recognized power of SEQUENCING (I call it prioritization by sequence). This pattern results in the hip flexors winning the battle against the abs and glutes, consequently pulling the top of the pelvis forward and resulting in a pinching of the nerves feeding the lower body. Why? Because the quads/hip flexors get a better training effect.

Now count up the number of quad dominant vs. the number of hip-dominant exercises. Are they of equal number? Again, if you're like the majority of weight trainers, you'll have incorporated more quad exercises than hip exercises. If this is not readily apparent, count up the total number of *sets* for each!

Remember this: the muscle groups done with more volume potentially get a better result. This is again the little recognized power of what I call prioritization by VOLUME.

Moving right along, take the quad and hip-dominant exercises and divide them into compound (double or multiple joints) exercises and single joint exercises. If you're caught up doing what the bulk of the weight training masses do, you'll have more compound movements for the quads than in hips.

No good. A single joint-exercise is not equal to, and does not compete with, or negate the consequences of a compound movement. Despite what appears to be the common belief, a leg curl or a stiff-legged deadlift does not equal/negate a squat! This is the little recognized power of MATCHING.

In essence, a compound movement causes a different training effect on muscle length and tone than an isolated exercise.

In summary, nearly everyone gives more attention and priority to quad-dominant exercises than hip-dominant exercises, resulting in the hip flexors "winning the battle."

### Abdominals vs. Quads

What about the abdominals? Where did you place them? Again, if you're following the herd, they go last. If you have any excessive anterior rotation of the pelvis, or if you have had a lower back-related injury, or if you score poorly on any abdominal assessments, AND if you are doing the abdominals last in your workouts, why not just step outside and empty a clip into your foot, or run your car off the road into a brick wall. Okay, I'm not really suggesting you do either, but in essence you're doing the same thing!

I could take a week expanding on this discussion, and for those less receptive to hearing things differently/changing, you can go ahead and debate it for the rest of your life. Personally, I'm happy sharing this info with those who want increased lower-body strength/power and lower incidence of lower-body injuries!

I know, I know, you "weaken" your trunk and risk injury by doing abs first. Yeah, and you go blind if you spank the man, and oh yes, the world is flat, too. Do me a favor and just be objective about myths like these! After all, you still have your eyesight, don't you? And Columbus did find the new world, right?

In summary, you should prioritize your abdominals in the same way you prioritize any other muscle group. If they're weak, they need a turn up front in the workout! But not all the time. If you successfully elevate their capacities (and this is the aim of training!), they can spend their share of time at the end of the line, also. Ideally, use a brutally honest feedback mechanism rather than a circus-type mirror feedback system on making this judgment!

#### Length Issues

Let's go back to our diagram. The arc to the front bottom of the box was meant to be drawn in a different color. I asked you to do this because I want to discuss the *stretching* of this very powerful muscle, not the strengthening of it!

If the hip flexor is strengthened but not stretched, it gets tighter, shorter, and pulls the top of the pelvis forward. Very simple. So how much stretching of the hip flexors/quads are you doing? I know, we're currently going through a "stretching will make you weak" trend period. Relax. Prior to that, we went through a "stretching will cause more injuries" trend period. And sometime before that, there was never any talk about stretching.

Let me give you my theory on all this. Many industry leaders (and I'm talking about therapists and coaches as well as trainers, and the therapy profession as well as the science and practical areas of strength and conditioning) with an investment in their status were totally unaware of the roll of stretching. So when the questions get raised about stretching, rather than say, "Well, we don't know but we're open to learning," or going out and giving it an objective go, I suspect they looked for some folk-lore type scare tactics to drive off the threat to their historic neglect of stretching.

There will come a time when stretching is accepted and revered for what it is — the most important physical quality of all, and the one you will be able to do later in your life than any other. Until then we must work around the mythical roadblocks.

It wasn't so long ago that business people spread the rumor that franchising was illegal, so that for decades this conventional business-threatening business model was repressed by the

mainstream. Imagine that. If you now owned a big Mac franchise, you'd no doubt be very comfortable with your financial future and social status. Forty years ago the concept was so poorly perceived, attempts were made to ban this business model!

So like I said, relax. Who cares which trend of resistance we're in? Look after yourself and do something that the herd will finally adopt in 10-30 years, which is to give stretching a greater priority in your training!

### Tension Issues

Even when you're competent in stretching, there will still be issues of tension unresolved that might contribute in a negative way to the positioning of the pelvis. Chronic tissue damage is a good example of this, as is the ilio-tibial band (ITB and TFL). This is where hands on massage and similar techniques come in. If more of this were done as a means to control optimal muscle tension, less would need to be done as a means to rehabilitate individuals!

There are many modalities that you can use to lower muscle tension: massage, acupuncture and pressure, ART, hot/cold aqua exposure, specific minerals, and relaxation techniques. Not all cost money, or are expensive, so there's no excuse for not including some in your training regimen. And if they are expensive, it may well be because they are highly effective, and should be used at least intermittently at a planned frequency.

### Posture

If I left you with just the above, your chances of repositioning your hips would be diminished. Because whilst you train for 1-2 hours per day, you stand, sit (and lie) for the remainder. If you're utilizing a posture that is negating your good work in training, you may be taking 2 steps forward, 1 step back; or even worse, 1 forward, and 2 back!

This isn't the place to get too specific about posture, but I want to stress two things: the positioning of the pelvis along the horizontal axis of the pelvis; and the positioning of the pelvis in the frontal plane of the body.

Inadequate postural tone and awareness in the 'lower abdominals' and glutes leaves the hips excessively rotated, and the "James Dean" 'hips-in-front-of-shoulders stance increases the pressure in the lower back. If these issues are identified in clients, I educate and reinforce posture in addition to training.

And I (the horror) even have some early stage programs where postural rehearsal is conducted in training AT THE START! (I know, you thought that all that mattered was how much weight you lifted. How many times have I heard that defense before? "His athletes don't get strong enough.")

Let me sidebar on this — the only sports where training loads correlate with scoreboard success is the weightlifting sports. The correlation to all other sports is non-existent.)

Here are a few extra tidbits to give you more inspiration in this relatively benign topic: a hips-forward posture makes developing glute strength and size near impossible. And posture

is reasonably considered to be an expression of you, your self-confidence and composure. It's like the chicken and the egg, address the posture, and who knows what positive impact it may have on your self-confidence!

## Technique

What I did in the SWIS seminar was to get a few willing persons on stage and go through some technique issues, which of course is not as easy to do when you're writing an article. However, I will share a few key points that relate to hip positioning in major lifts such as the squat and deadlift.

Most know that you shouldn't allow your hips to rise faster than your shoulders in either the squat or deadlift. Doing so increases the loading on the lower back. Whether the person in possession of the knowledge actually implements this, especially under the pressure of load and or fatigue, is another issue!

But what about the pelvic position and awareness in squatting and deadlifting? I guess if you're from the school of "if it moves, it's a rep and therefore it's good," don't bore or insult yourself by reading on. If you only lift (i.e. you don't run or cycle or swim or do any variations of these), you can get away with developing more muscle imbalances than someone who does locomote in higher volume, speed or variations thereof!

The message is this, if you're involved in another physical activity outside of weight lifting, don't look at a non-running lifter and say "Well, it's not hurting him so it must be okay." The higher the volume or speed of training, the earlier the flaws will make themselves apparent. It's like a loose bolt in the engine mount. If Grandma goes the 500 yards to the shop once a week at a speed of 20 miles an hour, you probably aren't going to see a problem for decades! But if you take that same car and drive it fast or long or both, you had better have breakdown support and maybe even good life insurance!

So just because the All-American squat and deadlift style is to stick your butt out and create a "firm arch" in the start position; just because that person said "this is how they do it in Olympic weightlifting," who cares? You don't have to do it that way. There are many ways. What suits an elite lifter is not necessarily best for you!

Watch closely the next time you're in the gym. Check out what's happening to the hip around its own axis while it's coming out of the bottom of a squat and deadlift. This is where most people increase their arch!!! Think about it, if you do impact negatively on the nerves feeding the legs by increasing the arch of the lower back, what are you potentially doing to the power potential of the glutes at the time when you need them most?!

And what about the glutes when this anterior rotation is happening out of the bottom (start of concentric phase)? Can they be optimally involved if they're lengthening with this anterior pelvis rotation?!

There are many issues to be dealt with in relation to technique, but I don't rush to teach you the methods I've developed for the average athlete because I cannot guarantee you that you'll master them in one session or one article. For one thing, I know that many of you would probably need to lower the loads to learn a different technique, but not many want to do this

(humility needed). And if you believe that load is all that matters, it wouldn't even be worth starting the discussion!

However, for that minority of individuals that's still reading and who weren't eliminated by that last paragraph, I do share my methods with you in seminar or on video tape (e.g. *Killer Legs, Get Buffed Video Series, How To Teach* etc., which are available at the T-mag.com online store or [KingSports.net](http://KingSports.net)).

### The Wrap

My presentation was well received, and the guinea pigs on whom I demonstrated my techniques were all good sports.

And so the show came to an end. Bill Pearl told stories of how the iron game unfolded in the U.S. during the 1900's; Dorian Yates shared how he became one of the most massive bodybuilders in history; Bill Kazmier folded frying pans and generally awed us with his incredible shape; and I entertained a small number of die-hards who shared the above thoughts with me on a Sunday morning in Toronto.

Thanks to those who came and also to those who read all the way through this summary. I trust it will make a difference in your training!