

Power in Sequence: The Summation of Joint Forces in Canadian Jiu Jitsu

If stability is the soil from which technique grows, then summation of joint forces is the tree trunk—strong, connected, and rising upward through the whole body. It is the principle that explains why a well-thrown punch from a smaller person can drop a larger opponent, or why a subtle shift of the hips can send someone airborne in a clean throw.

In Canadian Jiu Jitsu, this principle is not optional—it is essential.

What Is the Summation of Joint Forces?

The concept is beautifully simple: the body is made up of segments connected by joints. When we move, especially in martial arts, we have the option to isolate or to integrate.



The Summation of Joint Forces Principle states that maximum power is generated when multiple joints and body segments work together in a coordinated sequence, from the ground up, and from larger joints (hips, shoulders) to smaller ones (elbows, wrists, hands).

In other words, you hit harder when you hit with your whole body, not just your hand.

"From the Ground Up"—A Living Chain

A punch does not start at the shoulder. It begins in the floor. The practitioner pushes against the ground, transfers that force through the legs, rotates the hips, coils the spine, releases the shoulder, and snaps through the arm and wrist. Each joint adds to the total force, like a whip gaining speed through each link in the chain.

This is the summation—a series of linked contributions, each timed precisely. When done well, the result feels effortless. When done poorly—say, throwing a punch with only the arm—it feels weak, disconnected, and often awkward.

This applies equally to throws, takedowns, and joint locks. A shoulder throw that neglects the knees

and hips will lack lift. A wrist lock performed without shoulder engagement will crumble under resistance. Shihan Forrester was clear: every available joint must contribute to the technique for it to reach full effectiveness.

Training the Principle

Novice: Isolation to Integration

Beginners often learn technique in fragments. They punch with the arm alone, throw with the hands, kick with the leg. The first step is showing them how to connect the chain.

Drills at this level often slow things down. A punch is broken into stages: hip rotation, torso twist, shoulder extension, elbow snap, wrist finish. Students are encouraged to feel each phase, then begin to blend them.

One classic drill: power push. In a horse stance, students push a partner or pad using their whole body, initiating from the feet and finishing at the fingertips. It teaches them to drive through—not just push with—the hands.

Intermediate: Coordinated Power

As the student grows more comfortable, the next challenge is sequencing. It's not enough to engage all the joints—they must be engaged in the right order.

Here, we introduce drills like palm strikes with foot pivots or torso-led shoulder throws. Students learn to lead from the hips, drive through the core, and extend through the limbs. They discover that a delay or mistiming at any joint reduces the total output.

This is where the real magic begins. Movements begin to flow, and power feels less like effort, more like release.

Advanced: Timing, Flow, and Intentional Disruption

At the highest level, the principle becomes a dance of tension and release. Advanced students no longer think about the sequence—they feel it.

Now we introduce challenges that disrupt the chain: off-balanced throws, shifting footwork, improvised combinations. The goal is to maintain the summation under pressure and adapt it dynamically.

Advanced drills may include:

Throw execution while off-angle: requiring rapid re-coordination of the kinetic chain.

Feint and strike combinations: demanding precise sequencing amid deception.

Power variation drills: where practitioners vary the force by changing timing—not just muscle. Here, the student isn't just strong—they are smart with their strength.

The Biomechanics of Mastery

When Shihan Forrester emphasized the Summation of Joint Forces, he wasn't talking about brute strength. He was speaking to the elegance of efficiency. Why use more effort than needed when a well-sequenced motion can multiply your force?

This principle teaches us that more is not better unless it's coordinated. It's not how many muscles you use—it's how you use them, and when.

That's what separates the beginner from the artist: not the size of the movement, but the timing and unity of the motion.

Canadian Jiu Jitsu Council Directors



Shihan R. W. Forrester (d. 2013)

