



Joints, Anchors, & Tie Downs

The older I get, the more aware I am of my joints. While I wouldn't trade my years as a gymnast, I do recognize the certain uses (some might say abuses) definitely contributed to the current state and function of my joints.



For example, my years as a ring competitor probably over extended the shoulder (ball joint) and in some cases reduced the mobility. While crosses and giants were normal use back then, they did effect how my shoulders function later in life. Today, I'm reminded of the wear and tear every time I change a light bulb, try an overhead shot in tennis, or paint the ceiling.

My point here isn't to elicit sympathy, because every minute I spent in gymnastics was well worth it. My point is to recognize the joints have a specific purpose and an intended use. The same is true for the joints that hold you equipment in place and we need to recognize that when we stray from the intended use, or expand on the use, we may be causing added strain that may affect its function now and in the future.

I find the easiest explanation to be the anchoring of cabled uneven bars. As the skills on bars have advanced over the years, the need for more movement of the rails increased. The fiberglass bar has been developed to give added spring to the athlete and reduce the stress on the gymnasts' joints. So



far, it's all good, but when that rail flexes, the distance from end to end must decrease because the bar does not have any end to end elasticity. Therefore, in order for the bard to flex, and the ends to come in, the uprights (vertical supports) must move in, forward, or back depending on which direction the bar is flexing. The uprights are anchored by steel cables which also do not stretch so they just transfer the force to the tie down that is connected into the floor anchor.

The floor anchor is ultimately the last line of defense from the force created from the performance on the bars. For this reason, as we saw the skills advancing, the industry standard for floor anchors needed to keep pace. Industry norms now call for $\frac{3}{4}$ " anchors rather than the $\frac{1}{2}$ " anchors that were first used 50 years ago. If your gymnasts are progressing with the sport, it is to your advantage to upgrade to $\frac{3}{4}$ " anchors.



Allow $\frac{3}{4}$ "
tie down



Swivel tie down

The industry has also changed from static tie downs to swivel tie downs that allow for a little front to back movement without putting that added strain on the anchor. Aside from selecting the correct bar system to train your upper level gymnasts, the most important equipment decision is having the right anchors and tie downs. This anchoring advice would apply to all cabled apparatus (High bars, Unevens, Single bar trainers, & ring frames).

The last point of discussion is, “How tight should we make the cables?” Over many years of viewing, I have learned that this is very much a personal preference and often is made without the understanding of the operational mechanics. In the early days of cable unevens I used to see the European gymnasts using the cable much looser looking for more movement of the bars to aid the movement. Today I see coaches trying to add tightness beyond the intended engineering in order to get a faster response from the flexing rail. An easy rule of thumb is that the tighter the cables, the more strain there is on the anchors and the more often the anchors should be checked and replaced. I choose not to debate this with any coaches as we each have our own unique historical perspective and our own anticipated outcome, but we should all stay informed of the facts.

In the end, your equipment’s joints (connections) are not all that different from mine, and as they get older you need to keep an eye on them, as continued similar use could cause something to strain or break. And whether you’re swing a golf club or your gymnast is swing a giant, you don’t want to hear that “Pop!”

Steve

Steve Cook – AAI National Sales Director

Steve.Cook@fotlinc.com

