What Happened to Gymnastics? Personal Reflections

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Despite a crushing lack of talent, I was a gymnast. Gymnastics was my love and my identity. I grew up by and through gymnastics learning many life lessons from my coach and other coaches of the "old guard." Before college, gymnastics books were my only coaches – I was lucky to survive. Gymnastics was as much a part of me as breathing. Sadly, things have changed. During the last decade or so, perhaps longer, the gymnastics world has become a toxic, selfish, mean-spirited, greedy, and grotesque place. Except for a handful of experiences, I walked away from gymnastics after the Athens Games. I would like to offer some ideas for those who, like me, still love gymnastics but have also found modern gymnastics a disquieting enigma of the first order.

Months have passed with a nagging emptiness that I could not articulate. I hope that this document adds to the discourse about modern gymnastics. After observing from a distance, I hope you find some useful ideas and that my timing is right.

Why listen to me? In terms of full disclosure, I have placed a brief description of my background at the end.

Maybe it's always been this way

The organization and implementation of sports governance is simultaneously a job, hobby, and lifelong mission. Sadly, too many people in high positions have used their positions to corrupt the spirit and body of gymnastics, contorting the sport to serve their selfish agendas with little regard for the trail of pain and suffering left behind (10, 20, 39).

> *"Within the current amateur sports system in this country, the important game for too many people is not producing results on the playing field but accumulating and maintaining power in the boardrooms. Large amounts of time, money, and human energy are devoted to this game. It takes so much energy, in fact, that many who play it have all but forgotten (except at election time) that there is a larger goal. The means (control of the national governing body or the USOC) have become an end. Once that control has been achieved, the important task is that of keeping it. Not making improvements."* (78), p 279.

In the past, while working at the USOC, I often wandered around the training areas to shift focus and remind me of why my job existed. Those who govern and oversee gymnastics must never forget that there is a person in that leotard, wearing those grips, and trying to make it look easy. The athletes have strengths and weaknesses, but they all come with a dream and at least the commitment to start a journey pursuing something bigger than themselves and lasts

longer than they do (16). We should find the journey inherently noble and worthy of our admiration and support.

What I've observed in the horrendous damage from the Nassar horror has been a litany of ass-covering, no admissions of guilt, little concern for what happens to gymnastics in the long-term, and lots of finger-pointing. Paying someone a million dollars to "go away" is obscene beyond measure. (https://www.wsj.com/articles/former-u-s-gymnastics-chief-received-1-million-severance-package-1496403590). The only thing worse than this obscenity is that many people who approved the payoff should have known better.

Why did these people become highly ranked and powerfully placed in gymnastics? It is clear that there is/was virtually no formal foundational education nor oversight and training for those responsible for gymnastics. Merely being a gymnast, the ability to hold a handstand, serving an elected or appointed position, or having coached for a little or long time are no longer enough in the international world of modern gymnastics. I believe the days of walking into any organization with global visibility and assuming the role of policymaker through committee membership with little or no formal training are gone or should be gone. Experience has shown that almost no one does any sort of homework regarding the aspects of which they will make policy decisions – until they are sitting at the meeting table. In gymnastics administration, the bar (no pun intended) is much too low. Experience has also shown that people are often misled by arrogance to think that they know all they need to know about an essential topic by merely being alive and marginally or intimately involved in some aspect of the issue. Rarely do people seem to consider anything beyond the advantages that may accrue for their current athlete(s), themselves, or they blindly follow the most assertive personality in the room. We put together groups of people on boards, executive boards, committees, task forces, staff, and others to manage gymnastics when what we need is informed, studied, and experienced leadership (14, 76, 81, 106, 108, 115, 117).

Leadership is not the same as management, and gymnastics needs leadership now more than ever. Managers are a dime-a-dozen; leaders are astonishingly rare. I tremble to recall every reporter, physician, therapist, parent, or intelligent bystander who called a beam a bar or a vault board a ramp. Being exceptional, highly esteemed, and politically connected in other fields are not enough. We need statesmen and stateswomen for and from gymnastics. We had a few of these people in the past; we need them to emerge again (46, 82, 87, 89, 91, 92).

Sadly, recent experience has shown that the moral compass of gymnastics couldn't get anyone to their front door, much less to the high-altitude position of knowledge and wisdom needed to offer gymnastics a new and better way. It is clear that gymnastics demands resurrection, restructuring, and rebuilding. My greatest fear is that despite this incredible opportunity, born of tragedy, we still won't get it right.

> *"But until I entered the world of amateur sports I had never seen so many people being so casually vicious and destructive over so little, and within something that the rest of society perceives as being positive: the Olympic movement."* (78), p 273.

We must move forward. If one is to "fix" gymnastics, where should we start?

Begin with Why, then How, then What

I believe that all enterprises should begin with the question, "Why?" (109). *Why* do gymnastics? *Why* do you coach gymnastics? *Why* is gymnastics valuable? *Why* do you administer and govern gymnastics? *Why* do you judge gymnastics? *Why* do you study gymnastics?

Unfortunately, those of limited experience and outlook tend to narrow their horizons to "What immediately." *What* solves the small, immediate, and local problems. *What* involves the "stuff" of gymnastics practice, the drills, skills, rules, policies, and other moment-to-moment interactions in the gym. *What* gymnasts do is undoubtedly essential, but this is not where leadership should begin. I would guess that 99% of all discourse and time in gymnastics studying and analyzing *what. What* is the third concept of importance for leadership (109)? The second and middle leadership concept is "How?" (109). More on categories two and three later.

*Why*s may vary for each person, situation, and time. *Why*s may be understood but unspoken. Of course, the gymnast's answers to *why* are usually related to fun, challenge, and fame. Coaches might answer the *why* question with these ideas and a host of others. For example, coaches might coach because they enjoy teaching youngsters (22, 88), to make a living (97), to become famous (45, 49), to coach a son or daughter (116), and although perhaps somewhat outdated – to beat the Communists (12, 13, 47). I must confess that growing up during the Cold War raised the importance of beating the Communists for myself and many other coaches from the "old guard." (10, 13, 20, 31, 47, 112). The dreaded Eastern Bloc was a formidable group because they had many excellent athletes, and they cheated (2, 6, 21, 27, 32, 39-42, 48, 62, 70, 73, 75, 83, 112). Communist-style cheating may be upon us again, or perhaps the cheating never stopped (59, 75).

In 1995 I wrote an article *What's Wrong With Women's Gymnastics?* (91). The article seems rather prescient even today. I tried to paint a more accurate picture of women's gymnastics at that time as a response to complaints about media coverage. The folklore of the time considered the media too negative. People forgot that the media's job is/was to report, not promote. The article included a question, "Is gymnastics a veiled form of child abuse?" (91), p 29. At that time, the issue arose from the tragic death of Christy Henrich, resulting from complications caused by an eating disorder. Sadly, this tragedy led to a blizzard of accusations directed at gymnastics coaches in a fearsome example of schadenfreude (43, 65, 74, 118). Some policy changes from these incidents were implemented and are still in effect today. As I reread the article, I remain in agreement with its tenets and believe that gymnastics' self-correction is not only possible but often happens quickly and with little fanfare.

History and generalities aside, *why* should we do gymnastics now? Some years ago, I wrote another article titled *Why Gymnastics* (92). Although the data forming the basis of the report are now out of date, the premises remain sound. Gymnastics builds youngsters and young

adults who are highly fit, smart, and confident. Although the qualities listed above are still acquired by and through gymnastics, the rules and governance of gymnastics have created a disquieting cultural shift. Gymnastics has shifted from building champions through tough love to out of proportion emphasis on being "Code smart." One of my reasons for leaving gymnastics was that I found modern performances ugly and too often scary (67). Difficult skills and the engineering of such skills are admirable, but women gymnasts used to dance on floor exercise and balance beam. Dance teachers/coaches were integral to the overall gymnastics experience and choreography. Floor exercise should not look like tumble, stand and turn, repeat, pant heavily, and then tumble again while the music plays along. Gymnasts are so busy "getting in their difficulty" the performances have lost much of their elegance. Walking heel-toe through the non-tumbling elements appears to be acceptable. Gymnasts, particularly lower level athletes, spend so much time getting "credit" for Code-listed elements that they can hardly move. Governance has not only put the cart before the horse, it appears that someone thinks the cart can pull itself.

Gymnastics should be predominantly a measure of skill, not guts. The rule that gymnasts must "stick" all landings has almost destroyed the flow of floor exercise and presents an increased risk of injury (60, 61, 68, 69, 71, 95, 96, 99, 110). Who decided that sticking was "all important?" One of my favorite floor exercise routines was performed by Franco Menichelli in 1964 (https://www.youtube.com/watch?v=a8CyIJSgUbU) and Maria Filatova in 1979 (https://www.bing.com/videos/search?q=maria+filatova+floor+exercise+fort+worth+1979&&view=detail&mid=A6EA0CBC67D00D078797A6EA0CBC67D00D078797&rvsmid=3BE021320DAE5EFCF2003BE021320DAE5EFCF200&FORM=VDQVAP). They showed how floor exercise could be elegant and exciting with movements that only stopped to emphasize a "hold" part. If, after viewing these routines, your first thought is how easy the skills were, you're missing my point. The modern rules and lack of a choreographic sense beyond bump-and-grind silliness have trampled elegance and creativity, leaving only "shock value."

We did gymnastics because it was fun. We did gymnastics because the sport and activity provided enormous challenges with rewards achieved only after years of hard work. Gymnastics training taught the difference between a purchase and an investment. The gymnast knows that all of the training and performance problems will not be fixed like they are in a 30-minute sitcom. I believe that gymnastics tends to make young people "tougher," more athletically and intellectually agile. Gymnastics training fulfills the dictum of a "sound mind in a sound body" (*mens sana in corpore sano*, Juvenal 55-138ce). Gymnastics coaches, I hope, teach gymnastics to help young people with the life lessons provided in microcosm via sport. Coaches will bring undeniable adult concerns with them to coaching. Coaches will be prideful in their coaching abilities; sometimes, their pride will overrule good judgment. Coaches require oversight and feedback. Coaches will seek fame among other coaches and the limited exposures of the media. Gymnastics coaches could be described as the *Invisibles* (121), or at least the *seldom-visibles*. Coaches, like the gymnasts who preceded them years ago, labor in relative anonymity except for a few members of the Olympic teams and collegiate coaches more recently. However, like the invisibles of Zwieg (121), these coaches

and their athletes are usually well known and admired among their peers and have established reputations across a variety of geographic areas and coaching levels.

We do gymnastics to win. I am not troubled by admitting that winning is important. Moreover, I hold a visceral objection to the incorporation of participant ribbons, the tenets of self-esteem, and other cons directed at making people comfortable with mediocre performance (7, 19). As a sport scientist, I have repeatedly described the mission of sports science as the application of science in sport to win – *within the rules*. The very nature of competition supports the concept of comparison and determining who and what are best. Establishing worth is inherent in sport and life. Rules are established so that participation is not a free-for-all. Gymnasts are guided by coaches to display their work in competition and be judged, we hope, by impartial evaluators. Unfortunately, athletes, parents, and the general public have trouble with strict adherence to merit, rigor, and honesty when it might hurt someone's feelings. Competition, especially failure, is a powerful method for building young people's resolve.

It is time again for gymnastics to revisit *why*. I can only recommend that despite what most will think obvious, the question is meant to be bigger than personal agendas. *Why* have coaches engaged in sexual abuse? *Why* do judges cheat? *Why* do we use the Code of Points (a rule book) as a coaching text? *Why* are athletes injured, especially the best? *Why* has the TOPs program morphed from a talent identification program to a competitive program for which athletes train for the tests – doesn't that defeat the purpose? *Why* do gymnasts and coaches use the warm-up period as a meet before the meet? Are they trying to win the warm-ups? *Why* would anyone think that NCAA recruiting a youngster in middle school is appropriate? *Why* does gymnastics have so many levels? Do we really need ten levels of Junior Olympic athletes, juniors, seniors, TOPs, Hopes, Excel, and so forth? Are the fundamental skills different from level-to-level, or are there merely different compulsories? Is the hair-splitting of levels necessary for gymnastics or a convenient way to classify athletes to make more money? Should gymnasts be instructed via movement families such as rolling, jumping, landing, swinging, cartwheeling, somersaulting, twisting, and so forth rather than simply learn a compulsory exercise? Gymnastics is much more than a compulsory.

Asking and answering *Why* is vital for beginning the process of building anything. I hope the new decision-makers are exceptional. There seems to be little or no discussion of important topics without a cloud of spin using bromides such as "transparency," "empowerment," "safety," "protection," "morality," and many other terms that do little but obfuscate and provide a warm fuzzy feeling. While there seems to be an abundance of rhetoric, the terms are seldom defined, and worse, there are no apparent plans for selection, implementation, and evaluation of these ideas. Ideas are great but utterly sterile without a means for debate, definition, and discovery along with implementation and evaluation. Within the current chaos, is everything just a counterpunch or are long-term strategies involved. These issues will not be resolved in the office; one person simply cannot know enough. Moreover, there should be regular and systematic discussions and debates from all of those involved.

Let's now turn to the pivotal component for gymnastics once the *why*-question is answered and understood.

How – the Chicken or Egg Question.

Example 1. Rebuilding a sport is not easy. Australia faced similar issues after their embarrassing performance during the 1976 Games in Montreal when Australia didn't win a single medal (9, 104). The Australians seized an opportunity, the result of a tragedy, to take Australia to the highest levels of elite sport via government intervention and funding, creation of excellent national and regional training centers, development of an education and research system that is the envy of the world, and allowed experts to engage their skills in building better athletes (9, 104). The Australians appeared to answer the *why* question by seeking to raise Australia to the highest levels of a respected sporting nation, and they answered the *how* question with targeted spending on everything from coach education, magnificent facilities, well-paid staff, and world-leading expertise and research. Of course, government funding can take sport and athlete preparation to new heights almost overnight. Until the U.S. embraces the reality that athlete development cannot go very far on family-based tuition payments, second and third mortgages, and bake sales. The hand-to-mouth existence of gymnastics will be subjected to pressures from within and without that can derail the best intentions.

> As an aside, those government officials who are concerned with protecting athletes should consider that when coaches are treated like second-class citizens (i.e., little education, unlivable wages, and little or no serious continuing education) and gymnastics schools live hand to mouth – the only coaches that programs can afford are cheap. Perhaps more professional treatment of coaches will result in more ethical and professional behavior. After all, what you pay for is what you get.

There are numerous aspects of the Australian experience and programs that could be used within U.S. gymnastics programs (5, 9, 17, 28, 34, 36, 37, 44, 66, 77, 79, 104, 111, 113, 114). Unfortunately, the Australian model and the Australian Institute of Sport are currently being gutted from within (24). The current dominance of U.S. Women's Gymnastics speaks more to a vast talent pool, huge school sport systems, collegiate scholarships, individual dogged determination, and extraordinary imagination. One might well consider that many of the most recent national teams for women are primarily coached by foreign-born coaches who have trained abroad.

Example 2. Following World War II, Germany was devastated. The country had lost millions of people, infrastructure was in tatters, many of their best and brightest had fled, and most of the country lay shattered by the war. Sport was considered an essential avenue for rebuilding Germany and the morale of Germans. But where to begin (31, 52, 85, 107)?

> *"No country in the world can progress far toward the creation of a top-flight competitive sports system without confronting immediate "chicken and egg" decisions. What comes first, the athletes, the facilities, or the coaches? The profit or long-term investment? The government or the private sector? Many countries in the world have tried to fit these pieces together with a variety of results."* (31), p 56.

> … *"They answered their chicken-and-egg dilemma back in October 1950. The answer was to opt for coaching: trained, professional coaching. Coaches who would go out and find the athletes while getting along with makeshift facilities and equipment until better facilities and equipment could be developed."* (31), p 58. [Emphasis mine]

The GDR elevated coaching to a science and built a system of education that, at the time, was second to none. Of course, enlisting such country-wide engagement of coaching and education was more accessible in a police-state. The drug issues still haunt our understanding of the former GDR (29, 47, 84), but the GDR did a lot more than drugs, and their organization, rigor, and system can provide important lessons.

> *"The elevation of coaching to the level of a science has been an alien idea in America, something that goes against the grain of every suburban volunteer who ever donned a cap and a whistle and set out to impart his self-acquired wisdom to generations of Little Leaguers. It's hard for us to imagine people spending four years in a university, let alone three more in a Ph.D. program, with all their efforts directed toward an education in coaching."* (31), p 58.

Let's take a few lines and investigate what the education of coaches in the former GDR involved. Keep in mind that the information in Table 1 came from coach education practices from at least 40 years ago.

Table 1. Coach education curriculum from the former GDR.

	Typical Curriculum At Leipzig Institute										
					Semester						
	Study Complexes	I	II	III	IV	V	VI	VII	VIII	Total	
					Lessons Per Week						
1	Fundamentals of Marxism and Leninism	2	3	4	4	3	3	2	4	300	
2	Introduction to Logics	3								66	
3	Sports Pedagogy	2	2	2			3	5		104	
4	Sports Psychology	4	4					2		120	
5	Theory & History of Physical Culture					3				57	
6	Sports Policy						2			34	
7	Leadership in Socialist Physical Culture						3	3	6	82	
8	Mathematical and Cybernetical Fundamentals										
9	Fundamentals of Natural Science	6	3	3						222	
10	Sports Medicine	1				3	3	2		130	
11	Biomechanics				3			2		48	
12	Theory & Methodology of Training										
	Specific Sports										
	Basic Training	13	15	9	16	7	6	2		1032	Men
										936	Women
	Special Training	2	2	2	2	4	6	8		270	
13	General Theory and Methodology of Training			4	4	3			10	181	
14	Practicals			6	6	6	6	6		324	
15	Training	5	5	5	5	5	5	5		585	
16	Foreign Languages										
	Russian	2	2	1						85	
	2nd Foreign Language				2	2	1			88	
	Introduction in Speaking (pronunciation)	1								22	
	From: Gilbert D. The Miracle Machine. New York, NY: Coward, McCann & Geoghegan, Inc., 1980., page 64.										

Does the curriculum in Table 1 describe the education of only elite coaches – no. Table 1 describes the extent of schooling required for someone majoring in coaching. It should be clear by contrast with how Americans become coaches that the level of professionalism in the U.S. merits some rethinking. If we want our coaches to behave with the utmost professionalism, we need to train, monitor and evaluate them as professionals. Below is a description of the education of volunteer coaches from the former GDR.

Volunteer Coaches

"The certification class I dropped in on in Berlin was the fifth session in a series for prospective Level I swim coaches, and the class included a construction worker, an engineer, several young gym teachers, a musician, an electrical mechanic, and a plumber. The teaching appeared to be excellent.

After completing ten sessions of study and lectures, these would-be coaches would have to pass a written exam before qualifying for their caps and whistles, and even then, they could only work as assistant coaches at the youth level, perhaps the equivalent of Little League baseball in the United States.

After one year of these duties, they would become eligible for the second stage, which involves a forty-hour course taught at a university. It is usually done all in one week, including five eight-hour sessions with another exam at the end. All of the applicant's expenses, including room and board, are picked up by the DTSB. What's more, the time taken for the course must be honored by the employer and cannot be charged off as vacation time. By reaching Level II, the volunteer can be head coach at the Little League level, and then after another year or two has passed he can again move up the line and take a much more advanced forty-hour course leading to the Level III diploma.

With a Level III permit the volunteer coach becomes eligible for postgraduate courses at the university level to allow him or her to keep up with all the latest developments in the science of coaching. Level III coaches work closely with the professional graduates of the Leipzig Institute when it comes to administering the entire sports program. Statistics show that 55.1 percent of all GDR volunteer coaches hold Level I certification, 26.3 percent have reached Level II, and 17.8 percent have reached Level III.

As a result, anyone who goes out for sport at any level is guaranteed to receive instruction from people who have some idea of what they are supposed to be doing. And the volunteers, for their part, have some idea of what to look for in the way of promising youngsters to move along for further testing at the high-performance sports centers." (31), p 51-52.

Keep in mind that this was published in 1980, approximately 38 years ago, at the time of this writing. Of course, coach education in the U.S. has received more attention since then. However, coaching has still not risen to the level of a profession.

The most common answer to every "people problem" we face is "education." Other countries have demonstrated that education can be the foundation and life-blood of sport. However, coach education in the U.S. is poor (31, 55-58, 72, 105). Moreover, describing any problem as a greater need for *education* does nothing actually to solve a problem. Everyone agrees that knowledge is essential, but merely deflecting the problem toward *education* is a smokescreen for doing nothing. Such approaches only give administrators the ability to say they 'checked the box.'

Coaching effectiveness has been a slippery concept, much like school teacher evaluation (18, 25, 30, 35, 86, 119), and suffers from many of the same issues (1, 11, 33, 38, 54-57, 64, 105). Education of whom, about what, what type of curriculum, by whom, and perhaps most important – who gets to decide? The school-based model of lectures, clinics, online videos, and so forth can help, but coach education needs a different and additional approach. I suggest that we look at medical and military models of constant and systematic supervision by *experts* and *confirmed leaders* in the field. Perhaps we could use more *on the job training* with "grand rounds," "fitness reports," and systematically written assessments of the candidates, including pointed feedback. Promotion and graduation are based on the judgment of smart people who know the candidate and the job exceptionally well. If it is true that we face an athlete abuse problem exacerbated by secrecy, then using a much more thorough mentoring approach such as found in military and medical education should expose unbalanced coaches and their hiding places before they can do damage.

Knowledge and knowledge tests are necessary (i.e., the "know that"), the coach also requires expertise in the one-word concept – "know-how" (3, 15, 23, 120). Coach education programs tend to concentrate on "know that" because it's easier to discuss and evaluate. However, the coaching *know-how* that most coaches, especially young coaches, need is sorely neglected. Again, I wrote about the stages of teaching that a coach goes through (88, 90, 94), and we know that athletes and high-performance learners tend to rise through a hierarchy of stages (4, 8, 88). Unfortunately, there is vanishingly little sensitivity to these stages in the information that is provided for coach education in the U.S. Instead, educational experiences for coaches are too often offered by people with little specialized knowledge and training, little long-term experience in coaching at a variety of levels, little specific experience with coaching issues that affect long-term athlete development, and too often with a product or service to sell.

Given that there is no national coach education, numerous self-appointed experts have risen to fill the void. Sadly, this approach merely continues mediocrity and knowledge redundancy. In addition to coach education, secrecy can no longer be tolerated. The strong mentorship approach described above helps ensure that *know-how* is communicated along with moral and ethical experiences because the mentor and mentee must navigate real coaching issues together.

The recent issues of abuse in gymnastics should bring coaching licensure to the forefront as a necessary step to increase the competency and oversight of coaches. *Why* hasn't coach licensure been invoked? Interestingly, one needs a license to cut hair, but a coach only needs to rent a building and hang up a sign to teach gymnastics. Who will have the most significant

potential influence on a youngster's life? Licensure, increased depth and breadth of education, close contact with multiple mentors, and constant evaluation and feedback, in my view, are perhaps the only means of maintaining oversight of gymnastics coaches. Everything about gymnastics will need to be exposed to the light of inquiry and evaluation.

> *"Our amateur sports system is an insular world. Americans know far more about how a high school football player becomes a professional in the NFL than they do about how an amateur athlete earns a spot on the U.S. Olympic team. Many within the system would prefer to keep it that way. Over time, this insularity has resulted in a system that is accountable to virtually no one."* (78), p 273-274.

How should be answered with coaches first and foremost. Coaches need to be better, and the training of those in governance should enlist modern methods for professional preparation. Tighter mentorship, much higher regard for coaching knowledge, and abilities via rigorous schooling and continuing education with systematic, regular evaluations should have always been involved in gymnastics. Unfortunately, a crisis was required to point out that gymnastics coaching needs a complete overhaul. Gymnastics is not alone in the need for rebuilding; however, gymnastics is unusual in that the athletes are relatively young and less likely to act independently (i.e., speak out). **Should it be necessary to "empower" athletes to speak out when the problem could have been handled long before the coach was on the floor? Who are the adults in gymnastics? How can we defer to a young athlete's personal nerve to speak out when there are adults involved that should have stopped or redirected the unbalanced coach? While I see such empowerment of children as necessary, it strikes me as cowardly. Again, where are the adults?**

When coaches are highly trained professionals, knowledgeable in all aspects and levels of athlete training, and systematically assessed – *just like other professions* – then I believe the likelihood of coaches abusing athletes will decrease precipitously. The bad coaches won't graduate, and those that do will not be able to hide. Short of such changes, business, as usual, can no longer be tolerated.

What?

Gymnastics is one of the richest of all sports in terms of *what* everyone has to learn. Women have four competitive events and other related activities that require learning hundreds of skills and techniques. Men have six events with a commensurate increase in possible elements. Trampoline, tumbling, foam pits, and various types of conditioning exercises all require special skills and abilities. Coaches learn different teaching progressions and protocols for all of these skills. Many books have been written over decades describing gymnastics skills, how they're taught, how they're spotted, and teaching tips to enhance learning – the *what*.

Judges learn increasingly complex rules that must be applied within a couple of minutes following a competitive exercise. The large number of competitive levels and the different rules used for Junior Olympic athletes, collegiate athletes, and international elite athletes are mind-boggling. Unfortunately, one skill performed at one level may be evaluated differently

at another level. Moreover, what sports commonly change their rules fundamentally every few years? Basketball would have to change the height of the rim, dimensions of the court, the value of a jump shot, and what constitutes a foul to compare with the rules changes commonly invoked in gymnastics.

At the *what* level questions, few sports match the complexity of gymnastics. Understanding a cartwheel is vital for a gymnastics coach. The coach should have a mental model of how a cartwheel is performed. The coach's mental performance model is used to determine the level of correspondence the athlete's motions demonstrate when compared to the model. When the athlete's movements deviate from the model, then the coach recognizes whether the deviations are serious enough to warrant changes in teaching language, progression, motion emphases, perceptual focus, age appropriateness, and many others (90). A coach must be highly trained and experienced in the development of motion performance models and how to fashion the "rough-cut" of a gymnast's motions to gradually sculpt these motions into a final performance of science and art.

"What questions" evolve in gymnastics. Skill difficulty is particularly subject to escalation. Difficulty escalation is easily observed by simply watching historical movies and videos of gymnastics (see above). Earlier gymnastics performances can even seem comical when viewed through a modern lens. However, there are many things current gymnasts could gain from watching performances from the past. We are often caught with the impression that gymnastics cannot progress any further, but it always does.

Gymnastics leadership, along with day-to-day coaches at all levels, need to know how progressions work, have the clairvoyance to know which skills and techniques will stand the test of time, and a crystal ball (or skilled performance "scouts") to predict the future and how performance will change and progress. Leadership should systematically visit gyms to observe training, not just competitions. Experience has shown that losing one's perspective on *what* gymnasts do is a dangerous step toward forgetting about the *how* and the *why*.

The complexity of gymnastics demands that governance study and understand the depth and breadth of the issues that arise and will continue to blindside gymnastics. The early Yurchenko vault (26, 50, 51, 53, 63, 80, 93, 101), new vaulting horse (100, 102), roles of stretching (103), and springier apparatus come to mind and can serve as helpful examples (60, 95, 96, 98, 99).

Closing

Coaches, administrators, leaders, athletes, judges, and other interested parties should commit themselves to reevaluate everything about gymnastics. The preceding was an attempt to provide a conceptual scaffolding, template, or model to begin.

Rules can govern your journey. You cannot break the law, defy physics, or put anyone intentionally at undue risk. You cannot use unapproved performance enhancers, you cannot steal, and you cannot deceive or otherwise defraud anyone to make your journey easier. Quick fixes are often seductive but rarely hold up over the long-term. You must acknowledge

that the journey will not always be pleasant and that you will suffer from small and large threats and injuries along the way. Make no mistake; you will suffer. Acknowledge the suffering upfront and pledge your commitment to handle the suffering without wavering.

How will you determine your direction of travel after the initial first steps? Your model serves as a continuous reminder of where you want to go. These navigation aids will provide a powerful guide. The guide will help determine *how* to find the best route. Unfortunately, anyone undertaking such an important journey will encounter unexpected threats and barriers. You should use your knowledge and experience to shift seamlessly from *why*, to *how*, to *what*, and back.

Your journey will be punctuated by numerous spur-of-the-moment decisions that are based on what you see in front of your face. However, "*what"* decisions should always be made against the background of *why* and *how*.

I sincerely hope that the new gymnastics leadership is up to the task.

My Background

I was born, raised, and educated in Wisconsin, U.S.A. My involvement in gymnastics spans more than 50 years. I was a gymnast at the University of Wisconsin – Oshkosh. UWO was an NAIA school. We won an NAIA national championship; I was honored with All-American status and the American Athletic Inc. Gymnast of the Year. I served as a coach for about a half-dozen Olympians and World Championship Team members. I owned a gym in a northern Chicago suburb and produced numerous state, regional, and national champions. I coached internationally for the U.S. and served as the assistant coach for the 1979 World Championships.

I went to the University of Utah to attend graduate school in exercise physiology and served as an assistant coach to the University of Utah (many time NCAA National Champions). After my masters and doctorate, I went on to a professorship at Utah, tenure, and adjunct appointments in bioengineering and physical therapy.

Later, my career led me to serve as the Senior Physiologist at the Lake Placid Olympic Training Center, followed by Head of Biomechanics and Engineering and Director of the newly formed Recovery Center at the Colorado Springs Olympic Training Center. More recently, I was director of the Monfort Family Human Performance Laboratory at Colorado Mesa University, Director of Education for the National Strength and Conditioning Association, and professor in Exercise and Sport Science at East Tennessee State University. During my coaching career and after, I served as an officer and chair of the U.S. Elite Coaches Association for Women's Gymnastics (USECA) for over 30 years. I currently serve as a sport scientist at the U.S. Ski and Snowboard Association in Park City, UT.

Writing is one of my passions leading to authoring or co-authoring 13 books, 50 book chapters, over 100 peer-reviewed academic journal articles, and over 250 gymnastics and coaching articles. I've given 95 international presentations and over 200 national presentations.

My wife Linda and I live in Salt Lake City, Utah. Our daughter Hailey is a mental health counselor in Durango, CO.

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