

# A CREATIVE MIND IN THE PROFESSIONAL DEVELOPMENT OF A STRENGTH AND CONDITIONING COACH

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The role of the strength and conditioning specialist broadly consists of athlete assessment, design, implementation and evaluation of conditioning programs, facility layout and maintenance, creation of policies and procedures, and record keeping (9). This requires the selection of a pathway of professional development that leads to the necessary knowledge and skillsets both in the short- and long-term.

The knowledge base required balances theoretical, or explicit knowledge, with experiential learning. The former traditionally comes from formal education processes in colleges, universities, educational events or conferences, and certifications. The latter might begin with a placement or internship and then continues in the practical setting for the entire duration of the strength and conditioning coach's career. These learning experiences have been described as acquisition strategies (direct transfer of knowledge from a teacher) and participation strategies (active engagement and direct experiences) (8). The strength and conditioning coach is required to demonstrate competence both in terms of content knowledge of the various scientific principles and biological foundations, with coaching pedagogical knowledge and the teaching and instruction needed to deliver the training input (8).

It has been suggested that developing expertise as a strength and conditioning coach requires a journey from beginner to competence and then expertise is gained with each level of having different characteristics and learning preferences (7). For the strength and conditioning coach to develop the requisite skills, knowledge, characteristics, and experience to move along this continuum, it requires exceptional commitment to the field for an extended period. In their long-term development, it has been suggested strength and conditioning coaches obtain knowledge inefficiently and this in turn limits their development of open-mindedness, self-reflection, and critical thinking abilities (13). In addition, they may often focus simply on copying what expert coaches do, rather than delving into the "why" or "how" more deeply (13).

Nearly 20 years ago, Professor of Cognition and Education at Harvard University, Howard Gardner, presented a philosophical and predictive essay on what he proposed are the "Five Minds for the Future," a look at what type of cognitive skills and thinking might be needed in the future (5). The application of the five minds to strength and conditioning has been discussed elsewhere and clearly Gardner believed in the interaction of all the minds when put into practice (8,12). However, it is especially important to look at the short- and long-term value to the strength and conditioning coach in developing the "creative mind" and its role in professional development.

The importance of creativity, or a creative mind, in long-term professional development may often be underestimated. This can be particularly relevant in professional fields that place primary

importance on disciplinary knowledge and scientific evidence-based thinking. The significance of creativity has recently been highlighted in sports coaching (10). Therefore, it makes sense that developing the creative mind could play a primary and perhaps fundamental role in the ultimate development of a strength and conditioning coach.

Open-mindedness when finding solutions to problems or searching for patterns in data are examples where a creative mind might be useful. Increasing skillsets in this way can be beneficial no matter what stage the strength and conditioning coach is at in their journey. It seems reasonable that this can be built and developed along with all other attributes traditionally included in a strength and conditioning coach's education.

## WHAT IS A CREATIVE MIND?

Gardner discusses insights proposed by psychologist Mihaly Csikszentmihalyi about how creativity emerges from the interaction of three elements: the individual, the cultural domain in which they function or work, the social field in which they exist (5). Innovative or creative thinking is framed by a knowledge dimension and a communication dimension (11). The knowledge dimension requires a curiosity for the unknown, the ability to challenge existing knowledge, a search for cracks and openings for new knowledge and ideas, and solutions to emerge (11). In this dimension, courage and persistence to put oneself in a place of insecurity, complexity, and openness is required. The communication dimension requires a culture, or approach, that values trust and openness. For a creative mind to fully engage, it may require a psychological space where trust and openness for new thinking is encouraged (11). In addition, individuals must be allowed to challenge each other's ideas and suggestions to optimize solutions (11).

The willingness to explore a problem with flexibility and imagination may be a hallmark of a creative mind. Taking the time to look at a wide range of obvious and less obvious approaches is not simply about being contrarian, it is deeply embedded in finding solutions that maximize resources and provide the athlete with the best range of options possible. It is deeply driven by a desire for the athlete to excel and succeed.

## THE CREATIVE MIND IN STRENGTH AND CONDITIONING

Applied creativity in strength and conditioning can impact the knowledge base, working practices, equipment innovations, technological advancement, and training methodologies. One of the most recognized elements in strength and conditioning is the training program. This is where the strength and conditioning coach details the range of inputs they are going to apply to the athlete. The fundamental purpose of these inputs is to generate a specific output for the athlete that moves them in the direction of improved performance. The specific design of these inputs must

be driven foremost by one question: “What world are you trying to create?” In other words, the design of the program aims to create a new world for the athlete that improves on their current condition. To design something that creates something new requires the need for a creative mind.

The development of high-quality training inputs requires both strong disciplinary knowledge and advanced creative abilities. Human beings can be influenced by multiple factors and the strength and conditioning coach must remain open to dynamically adjusting training content, loads, and objectives due to an athlete’s shifting mental or physical state (11). The ability to construct high quality training programs and interpret the interplay between factors during its delivery, in individual sessions and over time, requires a highly creative and flexible mind.

The specific challenges of teaching athletes at different stages of development might require unique and bespoke cueing ideas. The ability to trigger learning or technique development in an athlete struggling with lifting technique or a movement pattern is a highly important skill. A simple example of this can be the teaching progressions for a given lift or exercise that becomes challenging with athletes of differing experience or with physical limitations (9). Equally, in a rehabilitation setting, standard exercises might need to be heavily modified or non-standard equipment might need to be used to overcome a limitation.

Many strength and conditioning coaches are involved in long-term athlete development programs, which may mean providing training inputs to the athlete over many months or even years. One of their significant challenges is managing accommodations to these inputs, which is linked to maintaining sufficient variety in the program that avoids repetitive sessions and maintains motivation levels (8). The coaching of performers at all levels can often require complex problem solving, problems that can be unstructured and that benefit from a creative thinking approach (11). A creative mind is an immense asset in many situations that arise for the strength and conditioning coach. Success as an athlete requires combinations of talent, health, development, consistency, coaching, opportunity, and goal setting (3). This requires strength and conditioning coaches that can problem solve, piece together puzzles, and direct the sequence and development of coaching with individual athletes, even in the same event or sport (3).

A benefit of a creative mind is using existing knowledge and synthesis to pose questions requiring deep thinking, propose novel solutions, or stretch minds to build on existing knowledge. Some of the most interesting thoughts may emerge from the combination of creativity and synthesis (5). For example, the strength and conditioning coach can sometimes have limited influence in a situation as the head team coach may prioritize training time for other areas at short notice. The strength and conditioning coach must therefore be creative with solutions that maintain the integrity of the training input and continue to make

progress with the athletes. All strength and conditioning coaches are expected to progress athletes despite the constraints of the culture or environment. Recently, the concept of microdosing training has been put forward to solve such a problem (2). This is an excellent example of the creative mind at work in the field.

Below are examples of scenarios that might benefit from a creative approach:

- Global Positioning System (GPS) data collected on a soccer player shows a reduction in distance covered in the second half of two consecutive matches. The team coach believes it is fatigue related to a fitness issue and asks the strength and conditioning coach to explain and then address this. However, testing data shows fitness levels are strong. The strength and conditioning coach now must explore this problem more deeply.
- A group of influential athletes approach the strength and conditioning coach outlining a “unique training methodology” being used by another organization who are currently on a winning run. The strength and conditioning coach can find no evidence to support this new approach but is under pressure to add this into the strength and conditioning program.
- An athlete successfully completes a rehabilitation and reconditioning program following injury, but within one week of return to sport reports pain and discomfort. This happens twice in a row and the athlete and sport coach question the input of the sports medicine team, including the methodology applied to reconditioning by the strength and conditioning coach.

## DEVELOPING THE CREATIVE MIND

This creative thinking should not be viewed as random art; it must be grounded in extensive disciplinary knowledge and logical reasoning (8). Indeed, it has been proposed that creation is unlikely to emerge without strong disciplinary mastery (6). Highly effective strength and conditioning coaches are excellent examples of deep generalists, they have an immense and varied knowledge base across multiple areas. To best optimize this process, it requires exposure to a broad variety of experiences and settings along with a curious and creative approach to their work (9). A curious mind is the wellspring of creativity (18). The deeper you go into a subject, the more you want to learn.

Perhaps the most powerful approach to developing a creative mind can be found in what E.O. Wilson terms “consilience” (16). The strength and conditioning coach seeks knowledge and explores a wide and diverse range of disciplines (e.g., linguistics, psychology, mathematics, coaching science). As the depth and breadth of their knowledge in these distinct disciplines expands, they develop an ever expanding perspective on reality, which opens the door to the possible overlaps from what might at first appear to be independent and unrelated areas (16). In return, when confronted with a circumstance, they may have a much

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wider repertoire of ideas and thoughts from which they can generate options and solutions. In other words, to be able to generate creative outputs, one must maximize the number and diversity of experiences or inputs.

Below are some examples of how the strength and conditioning coach might incorporate this idea into their work:

- Once per week, sit on a chair in the corner of the training facility for an hour and watch and listen. Watch how other coaches work with athletes, watch how athletes interact with each other, and how coaches interact with each other. Engage all your senses to absorb as much information as you can. How do they move? How do they dress? What culture appears to dominate here? These are just examples of questions you can ask yourself. The actual questions do not matter, the process is the key.
- Take time to listen to and study different forms of music; visit places where other forms of design are relevant; read magazines and books on architecture, furniture, and music; and build an exceptional reservoir of knowledge across multiple domains. Much can be learned from fields where problem solving under constraints is common.
- Carry a notebook everywhere and jot things down that you see or thoughts that cross your mind. It is extraordinary how many great thoughts and ideas can get lost and never return if they do not get recorded. This is often the practice of people who create things, and it should be common practice for the strength and conditioning coach.

Ideas emerge from connections you make between pieces of knowledge, and these pieces can only appear if you cultivate both a deep and broad array of experiences and research. Your subconscious will be the judge of when any of this knowledge is relevant for application to your work as a strength and conditioning coach.

### BARRIERS TO THE CREATIVE MIND

One challenge with creativity is that it can move you away from a sense of certainty and it can be the demand for certainty, or the fear of uncertainty, that restricts your ability to open up your mind to consider a wider range of options. Have we placed restrictive boundaries around our options? We must demonstrate appropriate professional and ethical conduct, but are we limiting our options without knowing?

The idea of evidence-based practice can be seen as a cornerstone of many fields, not just strength and conditioning. Indeed, the modern strength and conditioning coach is expected to develop a skill set that has a thorough understanding of the scientific basis of best practice (17). The adoption of a creative process may be seen to be at odds with established values of evidence-based practice that underpin elite sports coaching (10). This means a lack of sufficient evidence may create a strong barrier to change

and this is likely to be difficult for a strength and conditioning coach with a creative mind. It is important to remember, much of the scientific literature around training is based on short 8 - 20-week trials. In contrast, athletes may use long-term periodized approaches where the effects can be measured over much longer periods (4). Experience of these long-term periodized interventions gives strength and conditioning coaches a breadth and depth of understanding that is unlikely to be matched in experimental sport science (4). The development of a creative mind and thinking creatively is therefore essential to effective athlete-coach interaction and success from planning and goal setting, through to competition and evaluation.

The biomedical model, despite significant criticism, remains highly influential in science and medicine (14). This philosophy tends to encourage a strength and conditioning coach to follow a cause-and-effect type of mindset. The disciplines of sport and exercise physiology and psychology are characterized by deeply reductionist thinking and often remain impervious to theories emerging from the science of complex systems (13). Training awareness and judgement that leads to decision making and execution require a much deeper understanding of the properties of complex systems (13). Sport is a dynamic entity with a myriad of interacting and moderating factors; however, this phenomena has yet to be properly considered in many training and coaching settings. Often, training is still approached as a series of individual components and ignores the fact that these components have interacting properties (13).

Therefore, the way we think about complexity, causality, and probability is going to affect what we consider to be the best method to use with an individual (14). Optimizing performance depends on an array of interconnecting elements and cannot be explained by a simple systems approach (8). For example, if an athlete develops back pain, the biomedical model would insist the problem lies in the physical tissues or biological domain. The possibility that social or psychological factors could lead to such pain would not be conceivable in this model, yet are perfectly plausible as an explanation. If a strength and conditioning coach works in a setting or alongside medics where biomedical or reductionist thinking remains prevalent, it might be difficult to voice an alternative point of view or discuss other possibilities without risk of censoring.

The challenge is that in some domains, original thinking or behavior is discouraged as too divisive, risky, or dangerous and might lead to marginalization or removal from a group (5). It is often said that the coaches drive innovation and are constantly posing new questions that scientists could test and explore. By its nature, this means that evidence for a new method may be slow to emerge. This may be particularly challenging if the new evidence challenges an existing philosophy or long standing belief.

If things are going well and methods and approaches are “tried and tested,” new ideas that might disrupt the status quo may face

resistance, particularly in results-based settings (1). Naturally, one understands this position when things are going well. However, in many cases, things do not go well and the strength and conditioning coach must consider many alternative approaches.

## CONCLUSION

The role of the strength and conditioning coach requires the selection of a pathway of professional development that builds on their initial training to further develop the knowledge and skillsets both in the short- and long-term. This requires strength and conditioning coaches to balance both theoretical and explicit knowledge and use a mixture of acquisition and participation strategies.

It has been suggested that strength and conditioning coaches obtain this knowledge inefficiently with too much focus on copying what expert strength and conditioning coaches are doing. This can limit their development of open-mindedness, self-reflection, and critical thinking abilities. While the strength and conditioning coach must push hard for evidence to support what they do, they must also remain disciplined to consider new ideas and approaches. This is essential to remain competitive in the market and to ensure ongoing professional growth.

The fostering of a creative mind is rarely considered in the strength and conditioning context; yet, it is essential to the ongoing growth and development of the strength and conditioning coach. The curiosity to understand that clients and athletes are complex, and that a creative mind is essential in finding alternate or unusual solutions, is something to be encouraged and supported.

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