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Zombie-like or superconscious? A phenomenological and conceptual analysis of consciousness in elite sport

Abstract

The role of consciousness has been heavily debated in recent philosophy of sport. The dominant view leaves little room for conscious attending, decision and action in sport, especially at elite level. Elite athletes are pictured almost like zombies when they perform. In this article an opposite view is presented. Both phenomenological description and conceptual clarification are used to describe a more complex view. The article analyses the role of consciousness in relation to different processes in athletic performance, like planning, attention, thinking, deciding and monitoring. It is concluded that in contrast to the dominant view consciousness plays important roles in elite performance.

Purpose

According to a popular view, elite athletes are almost like zombies when they perform their fantastic feats. I think this view is highly misleading and I will argue for another, more complex view, which leaves plenty of room for consciousness. I will use both conceptual clarification and a close phenomenological description to set things straight.

Background

The philosophy of mind has become a central discipline in modern philosophy and in many ways has taken over the lead from the philosophy of language. Developments in cognitive science, neurophysiology and computer science have created fertile cross-disciplinary grounds in which many “old problems”, such as the mind-body problem, can be raised in a totally new setting (1). One of the central topics is the role and place of consciousness (31; 34). Modern science seeks objective knowledge, and the subjective experience of consciousness has created something of a problem since the subjective view from within is hard to account for in objective terms. One solution was *physicalism*, which simply says that conscious experience is the same as the underlying brain states. The next solution, which is still going strong, was *functionalism*, which says that consciousness is just the software programme that can be run on various types of physical hardware. Information processing models have dominated in cognitive science and psychology, and also have a strong hold in motor learning and control (33). An increasing number of philosophers are dissatisfied with computer models and find that, with the new insights in neurophysiology, the studies of the mind must be linked to the brain as a biological entity instead of using computer models (25; 26). Furthermore, there is a rising agreement that the subjective experience of the conscious mind must be taken seriously as a fact, and that *the hard problem* today is to explain how it is possible that experiential qualia, the feeling of what it is like to have some experience, can arise out of “soggy grey matter” (18; 21). The soft problem is easier to address: how mind states are linked to and located in specific brain areas. In the following presentation I will neither try to solve the hard problem nor contribute with new details on the soft problem. My goal is rather to show how phenomenal consciousness, and hence one part of the hard problem, is expressed in sport.

Phenomenology has also received new attention, and has been combined with new findings from psychology and brain research (30; 31). Phenomenologists such as Dreyfus (7), Gallagher (11) and Kelly (15) have developed theories based on Heidegger (12) and Merleau-Ponty (19), and have drawn on research that sheds new light on skill learning and motor development. Dreyfus has developed a model with five stages that attempt to describe how skills develop from the novice to the expert level, and he maintains that whereas consciousness plays a central role at the beginner's level, it plays almost no role at the expert level. Similarly, the information-processing model in motor learning says that beginners process information in a conscious manner and according to rules, though at more advanced levels, the rules and the processing are increasingly rendered unconscious. Also Polanyi's (23) ideas of personal and tacit knowledge, and Galway's (10) ideas of "inner tennis", inner skiing", give pretty of room for non-conscious performance, especially at higher skill levels. Additionally, theories of "being in the zone", "peak experience" and the flow theories in sport developed by Csikszentmihalyi and Jackson (6) go in the same direction. Thus, there seems to be strong support for a view that has as a consequence, that there is little or no room for conscious thinking at the elite level, whether it is in sport or in other performance areas.

The early contributions in the philosophy of sport by Ziff (35), Steel (28) and Wertz (32) focused on the knowledge in sport, thereby following Ryle's distinction between "knowing how" as opposed to "knowing that"(24). The knowledge aspect is also important in Polanyi's ideas of a tacit dimension and personal knowledge, which have been discussed by Kretchmar (16) and recently by Hopsicker (14). Another source for the discussion of consciousness has been phenomenology, particularly the works of Heidegger and Merleau-Ponty as interpreted by Hubert Dreyfus in his many works. The skill model developed by Dreyfus and Dreyfus (8) leaves little or no room for consciousness at the elite level. In their doctoral work, Moe (20) and Eriksen (9) have used, discussed and nuanced the skill model but in general followed its main tenet, whereas Breivik (3) has criticized Dreyfus' views and his use of Heidegger. The only philosophical sport-related work that delves into neurophysiology and philosophy is by Birch (2), who has defended a central place for qualia or phenomenal consciousness in athletic experiences. As one can already see, consciousness is debated in relation to knowledge, skill development and skill execution, as well as the experience of what goes on in sports actions. In order to obtain a clear view of the role of consciousness in sport, especially in elite sport, I think we need both analytic philosophy and phenomenology. Conceptual clarifications and clear distinctions must be accompanied by precise phenomenological descriptions of what takes place in sports.

Conceptual clarifications

Consciousness presents a problem and a challenge in relation to ontology, epistemology and action theory. The *ontological problem* is not my focus here. Suffice it to say that consciousness is an irreducible phenomenon as stated by Nagel (21), McGinn (18) and Chalmers (5), and cannot be reduced to third-person objective descriptions of physical reality. Following Chalmers, I make a distinction between psychological consciousness and phenomenal consciousness. *Psychological consciousness* is the psychological machinery that makes us capable of perceiving, having beliefs and desires, handling information, making decisions, acting and so on. *Phenomenal consciousness* is our experience of what it feels like, i.e. the qualitative aspect of the various mental states, which may be called the *qualia* of our experience.

The *epistemological problem* is related to what phenomenal consciousness lets me know in addition to what I know when I use my psychological consciousness. Does it make a difference? The problem is famously discussed in Jackson's article, "What Mary did not know". If Mary knew all there was objectively to know about colours, what kind of knowledge had she missed without having experienced colours?

Obviously, people may be able to function in an adequate sense with no conscious qualia, but as Birch (2) maintains, there may be important things, even in relation to experience and performance in sport, that are lost when phenomenal consciousness is put aside.

The third problem is the role of *consciousness in human action*, which is what is particularly focused on in this article. I think we need a better description of the various aspects of human action, and not only the knowledge or skill aspect, in order to get a grip on the overall role of consciousness in sport. In the following, I will discuss both what goes on before and after a sports event, but first of all what occurs during the event. I will look at: 1) conscious planning and preparation, 2) conscious attention and presence in situations in the event, 3) conscious thinking during the event, 4) conscious decisions in the event, and 5) conscious monitoring and actions during the event.

When I talk about being conscious, I nevertheless think that consciousness admits to degrees, or more precisely: a conscious presence in a situation admits to degrees. One can be totally unconscious, partly conscious or fully conscious. There is a broad spectrum of states from sleepwalking to full attention to a risky task. The concept of consciousness that is used in the following discussion thus has a component of degrees or intensity and a component of variations in content. Conceptually and for analytical purposes a distinction must be made between different types of action (planning, presence, decision, monitoring) on one hand and degrees of wakefulness or awareness on the other hand. In phenomenological descriptions they need to come together to a totality.

Phenomenological description

Phenomenology comes in many versions. In many cases, a "phenomenological method" or "phenomenological approach" means an approach that focuses on individuals' or groups' "experiences", and the "meaning", or "meaningfulness", of such experiences (29: p. 240-245). This is far removed from Husserl's idea of a pure description of eidetic structures, which is even farther removed from his later ideal of a transcendental ego relating to an essence, or *eidōs*. But Husserl's phenomenological approach, especially his transcendentalism, and consequently idealism, is not always well suited to attaining a grip on sport. I think Heidegger, who wanted to study the basic processes and structures of human existence as these unfolded in daily life in his early philosophy, is a better choice. Sport belongs here.

Heidegger's idea of phenomenology was that the phenomena: a) should show themselves, b) *from* themselves, and c) show how they are *in* themselves. "Thus, the term 'phenomenology' expresses a maxim which can be formulated as 'To the things themselves!' It is opposed to all free-floating constructions and accidental findings" (12: p.50). In order to unveil the deeper structures of daily human life, it suffices to be a normal human being and investigate what is common to all of us. One strips away the peculiarities, tries to find the commonalities (what is common to all of us) and digs for the deeper structures, invariances and essences that characterize human existence.

This is close to what Nagel (21) characterizes as the phenomenological approach. He maintains that there are two main perspectives on the world, a subjective- and objective view. Whereas the subjective is characterized by the peculiarities and idiosyncrasies of an individual person, the objective is the view of natural science, which is a “view from nowhere”. But between the subjective and objective view, there is a third perspective, which is obtained if one strips away the peculiarities of the individual and his/her perspective, thus gradually extending the person’s situation and view to include others while taking a multi-person view. Nagel’s view permits a flexible extension from the single person to the group of people that one wants to include, and finally to all humans.

A version of the dominant view; the Dreyfusian expert

Before I present my arguments, I will give a closer description of the view I oppose. Hubert Dreyfus claims the following: “According to Merleau-Ponty, in absorbed, skilful coping I don’t need a mental representation of my goal. Rather, acting is experienced as a steady flow of skilful activity in response to one’s sense of the situation. Part of that experience is a sense that when one’s situation deviates from some optimal body-environment relationship, one’s activity takes one closer to that optimum and thereby relieves the “tension” of the deviation. One does not need to know, nor can one normally express, what that optimum is. One’s body is simply solicited by the situation to get into equilibrium with it” (7: p. 372).

He follows up with the following concrete example from tennis: “If one is a beginner or is off one’s form one might find oneself making an effort to keep one’s eye on the ball, keep the racket perpendicular to the court, hit the ball squarely, etc. But if one is expert at the game, things are going well, and one is absorbed in the game, what one experiences is more like one’s arm going up and it is being drawn to the appropriate position, the racket forming the optimal angle with the court – an angle one need not be aware of – all this so as to complete the gestalt made of the court, one’s running opponent, and the oncoming ball. One feels that one’s comportment was caused by the perceived conditions in such a way as to reduce a sense of deviation from some satisfactory gestalt. But that final gestalt need not be represented in one’s mind. Indeed, it is not something one could represent. One only senses one is getting closer or further away from the optimum” (7: p.372).

How should we characterize the expert in Dreyfus’ tennis example in relation to types of consciousness? From the passages above it seems as if:

- a. The expert is a passenger in his/her own body since the body-subject is “solicited by the situation”, the arm is “drawn to the appropriate position”.
- b. The expert is only consciously aware of a feeling – a feeling of tension, a sense of deviation from an optimum.
- c. The expert does not know what the optimum is, and it is not possible to represent it in any way.

This means that Dreyfus’ expert is low on alertness or wakefulness and that the expert acts without clear representational content. The next question is then: What is an expert and who is an expert? According to Dreyfus, the expert immediately sees what needs to be done. Based on a vast repertoire of situational discriminations and relevant skills, he/she/ does what needs to be done without having to consciously decide. He/she is able to make fine discriminations among situations and “has learned

to distinguish those situations requiring one action from those demanding another”(7: p.371). The expert driver, for instance, is able to slow down in the right way and at the right moment when going off-ramp without having to decide or be consciously aware of what he/she is doing, and simply does what needs to be done.

The consequence of this view is that most of us are experts in various daily situations and at a lot of tasks. The problem with this again is that what Dreyfus calls expertise and expert performance need not be of a very high standard objectively seen. It is a definition related to the subject and how the subject’s brain and mind function, though not to the outcome and quality of the performance in more objective terms.

This means that when people perform things in a direct, non-thematic, non-representational, absorbed way they are experts by definition, even though their performance in objective terms may be mediocre. On the other hand, people performing at a world- class level need not perform in the way experts are supposed to perform.

Dreyfus says that we should try to impress ourselves by how much of our lives are spent in absorbed, skilful coping, and how little with conscious attention and decisions. This may be true since we need not be very good at things in daily life, but just good enough. In our daily lives we do not seek perfection, but satisfaction. It suffices that I am good enough. I may be a Dreyfusian expert in driving to work, though this is of a different standard than Michael Schumacher at Grand Prix races. I need to get to work; he needs to do his best to win a race. From a subjective viewpoint, I may be more absorbed and at a higher Dreyfusian expert level than he, but in objective terms, my driving is mediocre compared to Schumacher. He performs much better but, as I will argue, is probably less absorbed and much more conscious than me.

Another problem with Dreyfus’ view is that when addressing sport skills, he only discusses things that go on during the competition. It does not look at what takes place before and after competitive events, in addition to all the time athletes spend on training, preparation and evaluation. These factors influence the mindset and level of consciousness during the event.

1. Conscious preparation; planning and evaluation

The Dreyfus brothers have developed a skill model of five or more stages that takes a performer from the first level of conscious and deliberate rule-following to immediate non-representational “absorbed coping” at level 5. It seems that when the highest level is reached, the focus is only on what goes on during the fully developed skill ~~situation,situation~~; say during a competition or a good practice. Even so, Dreyfus’ tennis player running on the tennis court has practiced for hours and hours to be able to perform at the level he/she is at. And he/she is still training and practising after having reached the expert level. Ericsson and his group (27: p.2003) have studied the best performers in sport and other skill domains (art, music, dance), and have concluded that one needs 10,000 hours of *deliberate practice* in order to reach a world-class level. That means one must invest an average of 3-4 hours of conscious and concentrated practice every day for 10 years if one wants to succeed. I would think that one probably needs just a few hundred hours to pass through the first four stages of Dreyfus model to thus reach a level of proficiency. That means that most of

the practice and hard training takes place at a high performance level, which is due to the law of diminishing returns. One needs to put in more time and effort to experience smaller and smaller gains and increases in performance, and I think Ericsson is right. The practice at high skill levels is not done as play or in a state of mental absorption or flow, as most of the practice is done deliberately and with conscious attention. I would further claim that it is done with a clear goal in mind.

What is that clear goal? It is the perfect performance and the performance at the highest level one can currently envisage. Every elite athlete continuously tries to improve his/her performance and reach even higher levels. Some of the best athletes, such as Ole Einar Bjørndalen in the biathlon and Lance Armstrong in cycling, are well known for their perfectionism, with every small detail of equipment, training schedule, nutrition being looked at.

Together with their coaches and support personnel, elite athletes do a lot of conscious thinking and planning in relation to the improvement of equipment, nutrition and their training schedule, which in many sports is based on experience and scientific research, and includes the proper balance between strength training, endurance training and technical training. In order to find the best technical solution, the athletes' subjective "view from within", as well as their experience and intuitions, are combined with their trainer's look from "the outside". The goal is to carve out the right model and the right Gestalt that can guide the perfection of movements to help provide increases in performance, which is an ongoing and never-ending process.

In addition to long-term planning and preparation, there is an important mental rehearsing that goes on in many sports right before the competition starts. The slalom skier makes a mental map of the course and rehearses with a sort of bodily feeling as to how the curves should be taken. The climber in the indoor competition mentally goes through the climb, making moves with hands and the upper body, so as to imprint in his/her body the movements before he/she starts. Similarly, in the high jump one can observe the athletes rehearsing mentally with small bodily movement before the jump in order to prepare and take in the necessary cues.

Consciousness is not only important during planning and before competitions, it also plays a central role when athletes and coaches evaluate their training and performance. After each training session and competition, in addition to the end of each season, there is a thorough evaluation of performances and results in terms of what went wrong, what functioned well and when the performance was at its best? Particularly when things go wrong, it is important to try to understand and find out why.

My point here is in contrast to Dreyfus and others in relation to presenting and insisting on all the deliberate practice, and all the thinking, planning, mental rehearsing, etc. that goes on both before and after a competition. Many authors forget that the seemingly automatic and non-conscious absorbed coping of experts is made possible by a conscious and deliberate practice, and this goes on even after they have reached the expert level. There is an extensive use of conscious thinking, concepts, models and representations, and there is also an important place for conscious forms of deliberation, choice and evaluation.

2. Conscious attention; conscious presence in the situation

Phenomenal consciousness implies a feeling of what it is like to be in a certain situation, and I maintain in the following that an elite athlete has a strong qualitative

feeling of what it is like to be involved in a hard and important competition. The athlete has a strong subjective experience of the event as a whole, and of specific parts of it, such as crossing the finish line or scoring a goal. Moreover, the athlete has an awareness of his/her body and its movements, and how well one is doing in the event.

The theory of absorbed coping and the idea of being on automatic pilot seem to make the athletes at the elite level almost like zombies. I maintained earlier that consciousness admits to varying degrees. A zombie seems to be close to a sleep-walker, and one is certainly able to perform bodily movements and low-skilled behaviour when sleepwalking, although somnambulists are not able to perform at a high level; instead, their movements are slow and of relatively poor quality. A next level of automatic behaviour is exemplified in the driving example. As with many others, when driving to work I have experienced that I have non-consciously been driving several blocks, passed traffic lights, steered the car, and it has all worked out well, though I am not able to remember what happened. Is this the type of absorbed coping that elite athletes' experience? I think not, for several reasons. In general, I think the quality of my driving in the absorbed state is quite mediocre, and I am not able to do it for a long period of time, just while driving a few blocks. As soon as a difficult or dangerous situation takes place, I wake up and become conscious. Furthermore, when I am driving absentmindedly, I typically think of something else such as a task, a problem or a feeling of some sort. I think that this is not the case in elite sport since the athletes are not outside the situation, but intensely in it. They have a feeling of being at one with their bodies, or experience a unity of mind-body-movement-situation-environment. The experience of "flow" or of "being in the zone" is not an experience of being somewhere else in one's thoughts, but rather a strong experience of being present in the current situation, of being there. Climbers typically report after difficult sections of a route that they had a heightened consciousness, and a very intense presence in the situation. They knew that it was difficult and potentially dangerous, and therefore needed all of their mental and bodily skills and strengths to handle the situation. Against the backdrop of a heightened consciousness and an intense presence in the situation caused by an awareness of being in an exposed situation, they make their next moves.

Another example of heightened consciousness is the fleeting awareness reported by hunters, who have to be open, yet attentive, to whatever cue that is potentially relevant. The animal can appear anywhere in the visual field, and the hunter has to continuously scan the surrounding field in order to be able to react quickly. Here, one has a combination of extreme wakefulness and presence, yet no specific focus. It is like the goalkeeper in a football match before the penalty kick not knowing where the ball will come from, scanning for cues to anticipate the movements of the kicker and the curve of the ball.

As previously mentioned, the experience of difficulties or dangers leads to both a heightened consciousness and intense awareness. However, if one masters the situation and feels control, one may experience deep flow, which is also awareness, but without the need to evaluate and make decisions. But flow can easily get in the way of an athlete's best performance since it may lead to a slight relaxation, as well as a will to enjoy and indulge that can take away the consciousness and focus needed to stay on top and follow through at the highest performance level that one is able to reach.

We have thus far discussed the role of a fleeting awareness and heightened consciousness. But what is the role of a conscious, attentional focus? This problem

has been addressed a lot in the motor learning and control literature, primarily in relation to decision-making (33). Since attentional capacity is limited, one's mind can easily become overburdened if one consciously attempts to decide and control too much. Therefore, the advice to athletes is to try to go on automatic pilot. In some cases, the best advice is to think of something else, for instance while making a putt in golf. In order to avoid intrusion from negative conscious thoughts, athletes are advised to count downwards from a given number in order to focus their attention on something other than the execution of the putt.

On the other hand, the problem for many athletes is that they are not able to stay focused on what is called the "work to be done" and the tasks to be fulfilled. To a large degree, the focus on tasks is conscious, and after many years of training, a certain focus can be ingrained as an attentional style. The tasks that the athletes have to focus on differ from sport to sport. In the high jump or long jump the athletes need a few keys, sort of checkpoints to be sure they are "en route". If they are, they can rely on a well-prepared skill repertoire. In individual sports with open skills, one needs not only checkpoints, but also attentional control points that need to be regularly checked. In river kayaking, one needs to look for waterfalls and drops, stone blocks and trees, as well as a continuous focus on the current and the waves. If one tips over and becomes upside down, one needs to get the paddle parallel with the kayak and then make the well-rehearsed eskimo roll to get into an upright position again. In sports such as football, the best players have an attentional focus that according to some studies has three levels: The players shift their focus from what is nearby, to what is at a medium distance to the entire field. For a skilled player, most of the perceptual scanning goes on automatically, although the attentional focus and distribution of attention between the three different fields is very important. Typically, the best players are more able to pick up the distance and place of the other players and their running patterns, and to position themselves in a favourable position relative to the others.

One needs to stay focused in an event, but one must focus on the right things and not focus too much or too narrow. Over focusing can also become a problem at the elite level. Some ski jumpers over focus on the angle in their knees and the balance over their feet, and consequently are not properly relaxed as they approach the jump. This example shows that too much self-awareness can interfere negatively with task orientation. In a general sense, the athletes know their body after thousands of hours of practice. In most cases, it is best when the body, at least in competitions, stays in the background most of the time. As Merleau-Ponty says, the body is supposed to be the "dark zone", the background in the theatre, from which all the specific moves shine forth. When athletes try to cross the finish line first they throw themselves forward, consciously moving that part of the body that is in front as far forward as possible, whether it be a foot, the head or the chest.

Attention is important for elite athletes, but it must be relevant. The leg of the skier is interesting only as the moving alpine leg on a ski, and likewise in tennis. As O'Shaughnessy (22) rightly says, the focus in tennis must be on the ball. The arm is relevant as a focus, only insofar it contributes to hitting the ball in the correct way. In order for the arm to do its job, it is necessary for the body to position itself behind the arm in the proper way so that it can have the needed force and angle, but this does not take place consciously. It is only at specific moments that the tennis player looks at his/her body in a conscious manner. It may happen when consciously looking at his/her foot and placing it close, though not too close, to the baseline before the serve.

Most of the time, it is better that the body is the dark zone, from which the bodily parts and movements can come forth to solve the tasks that need to be done.

3. Conscious thinking

So far, I have discussed to which extent elite athletes are phenomenally aware and present in what they are doing and whether they consciously attend or focus on specific parts of their attentional field. What about the role of conscious thinking, of reasoning and deliberation? Do athletes consciously think about something while they are performing? Is the thinking conceptual and representational?

The idea of absorbed coping means that athletes are totally involved in what they are doing. Dreyfus thinks that expert performance takes place without any conceptual or representational thought at all, whereas athletes at the highest level are just solicited by the situation and automatically do what is optimal. In contrast to Dreyfus and others, I do not think that athletes are almost like zombies when they move around. They not only feel certain attractions or deviations from a Gestalt, but they think about specific things. The Alpine World Champion winner in 2006, Axel Lund Svinndal, says he thinks all the time while he is skiing down the course, trying to follow the right line he has set for himself. He has specific tasks that he focuses on, including checkpoints that he controls on his way down the course. On the football field, the players talk to each other, try to follow a strategy and deliberately change plans if necessary. They find out the weak points of the other team and change their own strategy. In such cases, thinking is constantly happening. It is both a type of explicit reasoning and an implicit intuition, though at some times it goes too fast for explicit thinking to take place. I can think about a dribble and decide to do it as I approach an opponent player, but during the dribble I have no time for explicit thinking or conscious decisions. I just follow a dribble pattern that I have ingrained in my body through hours of practice, though of course this basic pattern has many variations due to varying circumstances. The Brazilian right wing Garrincha did the same dribble over and over again, but it went so fast that the opposing player was always too late to stop him.

Thinking in sports at elite level may also be representational. Dreyfus' tennis player is performing without mental representations, and only feels that there is a certain gestalt-like pattern that he/she has to follow. Contrary to this, I think that elite athletes very often have mental pictures of movements that are crucial. Football players have a mental picture of what a perfect kick on a half-volley looks like, or a free kick from 30 metres with a straight ankle. What the athletes have in their minds are mental pictures or Gestalts. If one is able to perform according to the Gestalt, one has the proper feeling, which is even more crucial in sports such as figure skating or ski jumping where style is crucial. Here, the athletes definitely have representations, ideal forms, patterns and movements that they are trying to realize. They can feel when it is right, and they can see it on the video afterwards.

In many cases, the representations are gradually reduced to a simplified version, as one only needs a part of it, a few keys or symbols. When I learned the eskimo roll, I increasingly made a better mental representation of what the eskimo roll looked like, how it should be executed and what it felt like when I performed it well. It was both a dynamic model, and a model of movements. After much training and practice, I could also use the model in the river in difficult situations. I just needed to remember the start of the model and the importance of getting the paddle parallel to the kayak, and then I just needed a short, dim awareness of the sweep stroke, and the sweep stroke went by itself. The model so to say had become ingrained in my body. My bodily

movements executed and realized the dynamic Gestalt that had started as a mental representation.

Athletes have representations, including concepts, deliberately constructed to aid in the understanding of performance. Sports have a sport-specific language with concepts that carve out parts of the sport-specific reality, as specific skills and movements have their own names and concepts. New techniques, new equipment and new sport forms need new concepts and words, which is an ongoing process. In old sports, new words may be invented to capture more fine-grained or more complex aspects of movements.

The way we chop up movements in a sport and take the chunks, pieces and parts and give them names influences how we think in that sport, and what we perceive. Let me illustrate this with the craftsmen who built the wooden boats that were used for rowing and sailing along the coast of Norway. The craftsmen needed specific skills and specific pieces of equipment to build the boats, and they developed advanced movements with their hands and bodies to build the boats. According to a popular theory of Polanyi, this would be an example of tacit knowledge, but it seems here that the craftsmen's knowledge was not tacit. The craftsmen used specific names and had specific words and concepts that described and supported the skills and movements that were needed. In combination with the right concepts, the skilful movements made it possible to achieve a better grip on what was going on. The conceptual grasp directed perception, attention and movement, which also made it easier to transfer skills from one person to another.

The same goes for football. New words and new concepts are developed that highlight and develop new parts of the football game, thereby helping us to get a grip on different types of situations that influences how we perceive, make decisions and act. "Breakdown" was a concept introduced in the 1990s. When a team loses the ball, it was normal for the other team to try to keep it and gradually build up an attack. But the concept of breakdown also offered alternative understandings and possibilities. The situation can also be used for an immediate and fast attack towards the goal of the opponent. . Breakdown situations therefore became something one looked for because they provided good possibilities for attacking and scoring. The way we think and form concepts certainly has a strong impact on how we experience and act in football matches, both as players and spectators. This means that conceptual thinking takes place, which in some cases is very important for the quality of performance at the elite level.

The thinking in elite sport is conceptual and thematic. That it is thematic means that it has a specific theme. Dreyfus' tennis player runs along the court and has no thematic thoughts; he just feels the attractions and tensions that make his body move in certain ways, run in certain directions and make him swing the racket in a certain manner. Contrary to this, I think that the player is running with a mindset that looks for openings and the possibilities of a good stroke. Running towards the net, he sees that there is a possibility to hit the ball, which is done in order to win a point, to win a game, to win a set and to win the match. The thematic focus of a tennis player is not the feeling of a kind of magnetic line that draws him/her towards certain parts of the court. The thematic focus is rather to hit the ball in a way that makes it impossible for the other player to return it.

4. Conscious decisions

The next problem has to do with the role of consciousness for situations in which athletes need to make decisions. Do athletes consciously decide when and how to act, and choose between alternative actions?

Dreyfus thinks that the best basketball players, such as his own favourite Larry Bird, are not making conscious decisions while they are playing. They simply have no time and are only aware afterwards of how they passed the ball in a certain way to a certain player. Like the best chess players, Dreyfus thinks that expert basketball players immediately see what needs to be done. They are solicited by the situation and simply see the right solution, as there is no need to let thinking, deliberation and conscious decision intrude. In many sports, there is simply not enough time to deliberate and weigh alternatives. The athletes trust an intuition that is based on a long history of tacit learning, which has carved out certain relevant reaction patterns. According to Dreyfus, the brain has developed a feed-forward system that, through training, has selected the pathways that facilitate expert performance.

Theories of decision based on information-processing paradigms lead to many of the same conclusions. Since the bandwidth of the conscious brain is narrow, fast decisions are normally taken through unconscious decision processes that operate at a broader bandwidth and at higher speeds. In contrast to Dreyfus, the information-processing paradigm operates with the same type of mechanisms at both conscious and unconscious levels. It is just that the unconscious is much faster. Dreyfus thinks that the unconscious expert performance operates through a totally different mechanism than novice performance, and the experts do not use rules and representations at all, but instead immediately see what needs to be done due to fine situation-specific discriminatory cues.

A somewhat different version of the dominant paradigm is found in Libet's studies that seem to show that conscious decisions are based on unconscious processes (17). Not only that, the unconscious decision is taken half a second before the conscious decision is made. The brain makes the decision of when to act and our consciousness just follows like a surfer that follows a rising wave. The feeling of making a conscious decision is therefore based on the false experience of being the deciding and acting agent. The agent that really decides is the unconscious brain, as here consciousness seems to only be like a puppet on a string. The only thing consciousness can do is to veto an unconscious impulse. One cannot initiate it. Libet's critics say that his theory may well apply in very short time spans when one is under stress, but most of the time we have enough time to think things through, weigh the alternatives and then act. Furthermore, his experiments were done under very special circumstances, with patients lying with electrodes hooked up to their brain, looking at a rotating disc that measured time very precisely and then deciding when to move their finger. The ecological validity of the experiment was very limited.

I think in most sports there is time to think and decide, and it is not the time factor that limits consciousness. In ball games with fast interactions there is sometimes too little time, such as in the Larry Bird example. But in most parts of the game, there is time to think and decide, when to pass, to whom, when to shoot and which strategy to follow.

It is true that in many cases athletes go on automatic pilot. But that is not because it is not possible to make conscious decisions, but because it is not efficient to use consciousness when one has trained for thousands of hours and reaction patterns are carved into bone and marrow and the quality of performance is as high as one has been able to get it. Nonetheless, when athletes let the unconscious processes take over

they do not become somnambulists. Consciousness moves to a higher level of operation and takes care of the more overall patterns and decisions.

Think about the eskimo roll in the kayak. You are upside down. The boat is unstable, upside down, and responds to your movements. You can move your hips from side to side and rotate your body relative to your hips. You can move your arms in the shoulders, in the elbows and the wrists in various complex ways. The number of movement possibilities is astounding. In addition, you are stressed and under time pressure. A system theoretical approach would say that the solution to this is to reduce the number of degrees of freedom. For instance, you can let a friend move your arms and body in the right way, which helps in learning the general pattern of movement. The arms then gradually function in a more unitary way; the degrees of freedom in the shoulders, elbows and wrists are reduced. The information processing approach would similarly describe how hierarchical motor programmes gradually become established. According to such a hierarchy, the different parts of the body are now moved by an overall plan. But does this mean that thinking and decision are made superfluous? I think not. It just means that the conscious decisions are moved as high up in the hierarchy as possible. In that way, our conscious capacity is freed for other purposes. If we needed to consciously attend to all parts of our bodies and make conscious decisions on every small movement of our body parts, we would not get around very much. Our evolutionary history obviously favoured those who were able to transpose their conscious attention to the higher decision levels. Otherwise, we would have needed to increase our attentional capacity considerably, and would have needed much more RAM in our conscious brains.

Even if the eskimo roll can almost be done on automatic pilot, the consciousness does not disappear. In the difficult situations of being upside down in heavy white water, I consciously have to decide when to try to roll. Is the paddle in a good enough position, should I wait a little more, is my body bent far enough forward to start the sweeping backward stroke? These decisions are often taken intuitively, though sometimes consciousness takes over. When new and unexpected things happen, or when things get difficult or when uncertainty and risk intrudes, conscious decisions need to be made.

5. Conscious monitoring; conscious actions

I have maintained that athletes are consciously present in situations; they think and decide in conscious manners, not down to the details, but more about the overall strategy. I will now discuss how they follow up their decisions and monitor their actions. They see how well they are doing, and consciously try to improve things that are not right.

Some seem to think that when one is performing in a competition or a match, one can shut down their continuous thinking. Particularly in events such as long-distance running, one could let the body take over. One could let the mind go blank or think of things other than running. As in the golf putting case, one could even consciously think of something that is irrelevant for the activity, such as counting backwards from 3,862. However, Bernd Heinrich, who is an ultra-marathon runner, says that he regularly monitors his running, checks whether his hips, knees and legs are in the correct position and whether his technique is good enough. Heinrich says, "Even the tiniest inefficiencies of movement can make a huge difference over a long distance. I often noticed that muscle tenseness could be relaxed by conscious effort. I then focused attention on my calves, thighs, arms, trying to relax them even during training

runs, so that the most essential running muscles would be exercised. For a mile or so I would monitor and hence try to control the kick of my arm swings, to make sure no energy was wasted in side-to-side motion” (13: p.231).

This monitoring function is important in relation to the goal one has set before the race. One has perfected a certain technique or way of doing things, and one monitors one’s movements to see whether one is on the right track. Similarly, in downhill skiing, Axel Lund Svindal focuses on the technical checkpoints, including the curve that he has decided to try to follow before the event. After having won a gold medal in the World Championships in downhill skiing in Åre, Sweden in 2007, Svindal thought he had made an almost perfect race, with just one small fault. After the race, he was interviewed on Norwegian TV by the reporter, Espen Graff, who asked him: “We talk about choosing the right line and the perfect run. Are you so well prepared that you go on autopilot or do you also think during the run?” Svindal replied, “I think during the run and – I think it is important to think during the run” and then, “I think about racing well and – there are a lot of small details and you need some pegs that make the details go as planned” (37). This means that while skiing at 80 miles an hour or more, there is time for conscious thinking and the monitoring of what one is doing. Even in a sprint race there is time for thinking, and world-class athletes report how they think while they run. Michael Johnson was interviewed on Norwegian TV, and was asked about whether he thinks during a race. He answered, “You are making a lot of decisions during the race based on what just happened – whether it happened right or happened wrong – you make a lot of adjustments and decisions – you need to make adjustments you know – and so on. It looks like the gun goes off and we just run is what happens, but internally in order to execute that race right, you know, there are a lot of things going on.”(36)

It seems that when Dreyfus talks about mindless absorbed coping as being typical at the expert level in sport, he is on the wrong track. In sports as different as sprinting, downhill skiing and long distance running, athletes monitor their performance and follow a plan they have made. Athletes perform conscious actions and attention, decision, thinking and monitoring all seem to be arts of the follow-up of the master plan. The following up seems to be performed consciously or at least at the necessary consciousness level.

Conclusion

The aim of this article has been to shed some new light on the role of consciousness in elite sport. I have attempted to both make better conceptual clarifications and provide relevant phenomenological descriptions. I have used examples from different sports, thus admitting that there are differences between sports, but that consciousness plays an important role in all sport forms.

For a long time, consciousness has presented something of a problem in the philosophy of sport. Early philosophic sport studies of athletic experience (Ziff, Wertz, Steel) were inspired in the tradition of Ryle and Polanyi, thereby underscoring the tacit know-how that athletes possess. More recent studies (Moe, Eriksen) have been inspired by phenomenology, and especially by Dreyfus’ skill model, which similarly implies that athletes at high levels operate in a totally absorbed way with no room for consciousness, whether as mental representations, conceptual discriminations or deliberate decisions. I believe this view totally misrepresents the depth, width and general importance of consciousness in sport. In order to present a better alternative, I made some conceptual distinctions and clarifications.

I first distinguished between the ontological, epistemological and action theoretical aspects of consciousness. My own contribution in this article has been in relation to actions in elite sport, and I further distinguished between psychological consciousness and phenomenological consciousness. It is not the machinery or operation of the mind that has been focused on in this article, but rather the subjective experience, the qualia and the various roles it possesses. Lastly, I made a distinction between what goes on before and after an athletic event as preparation and evaluation, and the event itself. In relation to the event, I have distinguished between attention, decision, thinking, monitoring and the total action. I could have also included other aspects such as perception or intention because consciousness plays a role in all aspects of human action.

I have argued that in sports at the elite level there certainly is a feeling of qualia, as well as what it feels like and what it is like to be in such and such a situation. I maintain that consciousness first plays a central role in the preparation and planning for elite performance. Together with their coaches and the entire support system, the athletes use a lot of conscious effort and planning to find the right equipment, develop the most advanced techniques and skills, use the best nutrition and set up an optimal training schedule.

Contrary to Dreyfus, when it comes to elite performance as it is displayed in competitions, races, matches and events, I maintain that there is also a central role for consciousness here. I maintain that conscious attention and focus are needed in all competitions, and that it is not possible in elite sport to let your mind wander and forget what you are doing. It is not like driving to work since there is a strong mental presence in what is going on. In many cases, there is a heightened consciousness, which is particularly the case when an event is difficult, important or when some risk intrudes.

I further maintained much of the thinking that goes on is thematic and even conceptual. Words and concepts play an important role in defining what is important and where the perceptual and cognitive focus should be. Sports are dynamic and evolving, thus new concepts are consequently carved out to define new strategies and new focal points. Moreover, I maintained that athletes make conscious decisions. That is, they do not make decisions about how to move down to the smallest detail. Since we have a limited attentional capacity, we need to concentrate on the higher-level decisions. This means that the training and practice that one has been doing has been ingrained in the body as patterns and solutions that have reduced the number of degrees of freedom and the possibilities for making different alternative movements. Therefore, athletes in general seem to be able to easily decide and execute what is relevant, although I disagree with Dreyfus, who thinks that athletes' bodies are just automatically drawn toward the right solution so as to reduce a certain tension in relation to a Gestalt-like pattern. The athletes are much more in hand with what they are doing. After all, they have a clear notion of what they are involved in, what it is about and what needs to be done. They are not passengers in their bodies, but instead are agents.

I further argued that the athletes are thinking during the event in the heat of the action, with both runners and alpine skiers having time to think. Even sprinters think while they run. Athletes have checkpoints for whether they are on track in what they are doing, and they follow up on the specific tasks they have set for themselves. Many

try to focus on tasks and not on outcomes, as well as on their own performance, and not on how well other athletes are doing or how likely winning is.

There is an important place for consciousness and for specific mental states in elite sport, which is true not only before and after competitions, but also inside the event. Dreyfus and others underestimate the role of consciousness. I do not say that all of what athletes are doing is conscious, as it is difficult to say how much is conscious since it would depend upon, for instance, whether fine muscle work in the hands or legs should be included or not. But my point is that the crucial elements in elite performances have to be consciously attended, and non-conscious dealing occurs since experts need not monitor everything they do. Nevertheless, automatic dealing has previously been consciously carved out and installed in the nerve-muscle system. Phenomenal consciousness is important. In the end, the feeling of what it is like to give a good performance and win a race is one of the most phenomenal feelings one can have.

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