

POSITIVE CHANGE AND FLOW IN SPORT

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Introduction

Modern psychology became an interpreter of the need to integrate the interest in mental illness and psychic discomfort, typical of the classical psychology tradition, through an investigation on growth processes and the expression of potential in individuals, groups and organizations.

The consolidation of a psychological practice “in negative” (Gheno, 2010), oriented towards the improvement of well-being through reduction or, whenever possible, elimination of psychopathological deficit, has been put in opposition to a kind of psychology oriented towards epistemological, theoretical and practical analysis of what is positive, that is, positive psychology. Positive psychology gave a strong and innovative contribution at a theoretical and applied level: it emphasizes the crucial role of the **individual’s resources and potentials**, something that previous research – oriented towards the analysis of deficiencies, deficits and pathologies – did not highlight. This change is a reversal of perspective: interventions set out to deploy a person’s abilities and resources are privileged, rather than the reduction or compensation of personal limits (Delle Fave, 2007; Delle Fave, Massimini & Bassi, 2011). Furthermore, this perspective brings the relationship between the single person’s well-being and the community’s development to the researchers’ attention, suggesting that it is possible working on the quality of personal experience to improve well-being and generate resilience in individuals, societies and organizations (Botella, Riva, Gaggioli, Wiederhold, Alcaniz & Baños, 2012; Riva, Banos, Botella, Wiederhold & Gaggioli, 2012). A similar historical evolution happened in sport psychology. Sport psychology was traditionally focused on improvement of performance through the elimination of negative factors such as performance anxiety, fear of failure or success, burn-out or fear of injuries. With the development of positive psychology, sport psychology enlarged its area of interventions to the improvement of the athlete’s physical and mental abilities, working on factors such as motivation and flow. Working on flow allows improving performance without giving up results and well-being, both of the single athlete or the team.

Our approach, starting from flow, offers concrete tools to build peak performance; in the next paragraph we will explore these constructs.

Peak moments

The specificity of the *flow*, *peak experience*, *peak performance* and *exercise high* constructs (Berger & Motl, 2001) has its common denominator in apex experiences defined as *peak moments*. They are states characterized by a total investment of the individual's psycho-physical resources on the action, with the consequent exclusion from attentive space of any external element by the generating action (see Table 1). These states don't answer to voluntary planning and anticipation rules, but they are obtained as a result of a complex synergy of multidimensional temporary factors. Except for *peak experience*, they all have a high probability of appearance during motor-sportive activities, even though they can be experienced during very different kinds of activities (Csikszentmihalyi, 1990; Harnison, 2011; McInman & Grove, 1991).

Table 1. Peak moments

PEAK PERFORMANCE	PEAK EXPERIENCE	EXERCISE HIGH
<ul style="list-style-type: none"> ▪ Task-generated initial attraction ▪ Clear focus of attention on the ongoing activity ▪ Spontaneity ▪ Strong sense of self ▪ Exceptional functioning of the individual system ▪ Higher performance than individual standard 	<ul style="list-style-type: none"> ▪ Passive involvement ▪ Positive and deep affective states with high emotional intensity ▪ Focus on internal states ▪ Deep fulfillment ▪ Lack of manifest behavior 	<ul style="list-style-type: none"> ▪ Deep well-being, euphoria ▪ Sense of perfection and spirituality ▪ Space-time alienation ▪ Perception of physical and/or psychological strength ▪ It happens during an active behavior (typically reported by runners or athletes who practice functionally similar motor-sportive activities)

Peak moments and flow

This paragraph illustrates how peak moments relate to flow state (see Figure 1).

Peak performance is defined as a state of exceptional functioning of the individual's psycho-physical system (Berger & Motl, 2001), characterized by a clear focus of attention on the activity, spontaneity and

strong sense of Self (Berger & Motl, 2001) *Peak performance* and *flow* present common aspects such as focus on task, clear objectives and union of action and conscience (Jackson & Marsh, 1996).

Delle Fave and Massimini (1999) put a stress on how the term *peak performance* indicates a particular form of behavior, where its exceptionality (in terms of performance) is promoted by a positive experiential state, describable as *flow*.

Peak experience is a psychological state characterized by positive, deep affective states and a high emotional intensity, such as happiness, ecstasy and enlightenment (Berger & Motl, 2001). It is a rare event, characterized by a state of 'transcendence', ecstatic contemplation, fulfillment, but also by a condition of receptivity and passivity. Attention is not necessarily focused on an external stimulus, or connected to a practical activity. This construct is different from *flow* for its characterizing condition of receptivity and passive fruition, for the focus of attentive resources upon internal states and components, as well as for the lack of dynamic balance between the level of challenge and the perceived and monitored response abilities through the search of continuous *feedback*.

Exercise high is defined as an experiential state, usually unexpected, characterized by perception of deep well-being, euphoria, physical and/or psychological strength, demolition of space-time barriers, sense of perfection and spirituality. It is experienced during running or any similar motor activity (Berger & Motl, 2001). It can be considered as a specialized form of *peak experience* (Berger, 1996), even though it is always observed in behavioral states of activity. The experience related to this kind of alienation is not always lived and reported as positive, characterizing itself as ambiguous if not, sometimes, as negative. The state of *exercise high*, differently from the *flow* state, does not represent a condition of positive predisposition in light of ability's growth and improvement of performance levels.

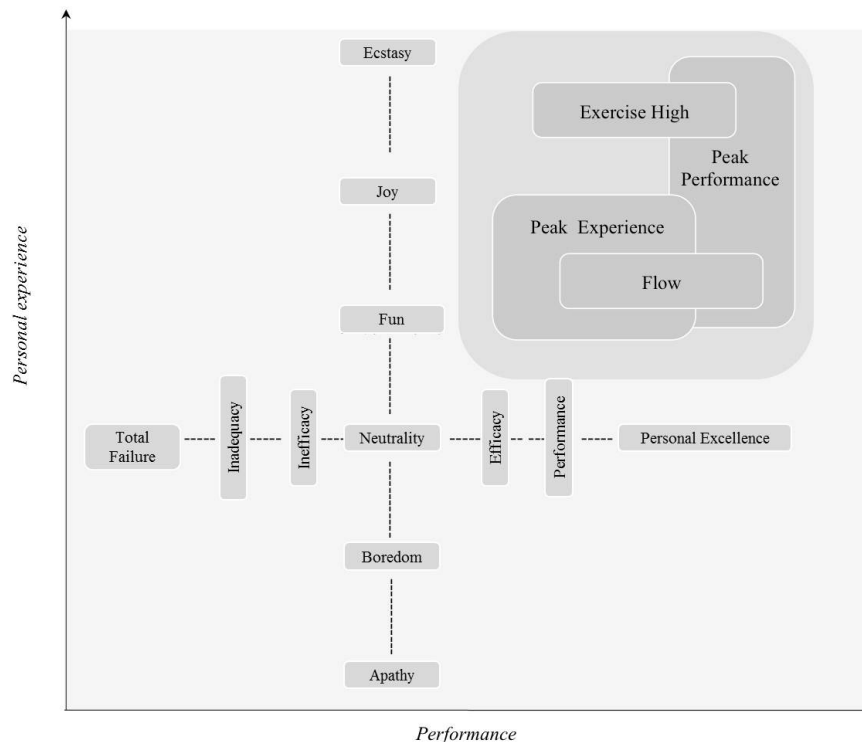


Figure 1. Flow and Peak Moments (Berger & Tobar, 2007, modified)

Flow and sports

Flow and sports were first put in relation in 1997, in Orlando, Florida. This concept is actually widely known: scouts, for example, select young talented players basing their criteria upon youngsters' capabilities to express a condition of optimal functioning on the field.

The event we're describing is an important basketball game: the Hoop Summit, which takes place every year and is organized by Nike, therefore characterized by a strong media impact. It is broadcast all over the world in prime time. The teams who play this game are the best under 20 players of the U.S., put against the best players of the same age from the rest of the world. Sandro Gamba – former coach of the Italian National Basketball team, Hall of Fame – was chosen to be Head Coach for “Rest of the World” team.

Dirk Nowitzki, nowadays one of the best players in the world, winner of the 2011 NBA championship with the Dallas Mavericks, was among the ones who were selected that year. Scouts in 1997, saw something in his leadership skills, his style of play (being ahead of the

game) and emotional intelligence, even though Nowitzki didn't show mature technical skills: the factors noticed by the scouts are necessary preconditions to enter a state of flow. One year later – 1998 –, during the Goodwill Games in New York, the American relay race team (4x400) established a new world record with a time of 2'54"20. The press described the excellent performance and commented it by saying the athletes were running in a flow state. The term was used with no uncertainties: everyone seemed to know its meaning.

From that moment on, the study of optimal experience became an object of interest for people in sports and psychologists as well, since sport and physical activity can easily induce a flow state (Csikszentmihalyi, 1990; Jackson & Csikszentmihalyi, 1999).

Flow State Scale

In line with tools and assessment protocols used in sport psychology (Tenenbaum, Eklund, & Kamata, 2012), the study of optimal experience in sports requires creating measuring tools that are multidimensional in nature, specifically made for consideration of the target's peculiarities and the experiential setting. Sports require, in fact, quick data collecting procedures, automatic and not invasive.

Alternatively to the use of the *Experience Sampling Method* and the *Flow Questionnaire* (citations), some integrated approaches were proposed, where the qualitative analysis of flow experience (Jackson, 1992, 1995) is followed by a quantitative analysis of optimal experience and its comparison with other psychological variables (Jackson & Csikszentmihalyi, 1999; Jackson & Eklund, 2002; Jackson, Kimiecik, Ford, & Marsh, 1998; Jackson & Marsh, 1996; Jackson, Martin, & Eklund, 2008; A. Martin & Jackson, 2008).

Born in 1996 from Jackson & Marsh's work, the "*Flow State Scale*" (FSS) is a first attempt to move in this direction. It has been validated in Italian by (citation), it shows how the experience of a flow state can be explained by nine dimensions described by Csikszentmihalyi (1990):

D1. Balance between challenge and skills. Every action involves different opportunities to act, that require specific abilities. During flow state, people perceive the situation as stimulating and challenging, while individual resources are balanced and adequate to the situation.

D2. Union between action and conscience. This dimension refers to total involvement in the action, so that automatisms allow the person experiencing a flow state to give a more fluid performance, avoiding perception of exertion or intrusive thoughts.

D3. Clear objectives. To live an optimal experience, coherent and non-contradictive information is necessary. Having clear, defined and measurable objectives is important to increase motivation and give a meaning to the experience.

D4. Immediate and direct feedback. During performance, it is necessary that people receive clear and timed feedback from the situation, so that they can constantly monitor how they're doing with their task and reach their expected goals.

D5. Focus on task. Attention is focused uniquely on the ongoing task and there's no space for unnecessary information.

D6. Sense of control. This dimension refers to the perception that people have, in a flow state, of an automatic and spontaneous control.

D7. Loss of self-consciousness. People perceive themselves as part of the task they're carrying out. Psychological energy is completely focused on the action and they feel free and careless of other people's judgment. The feeling that one's limits can be overcome increases the feeling of perceived self-efficacy.

D8. Distortion of time. The sense of time is altered: in some cases it is perceived as slowed down, in others it feels sped up. This dimension can be a consequence of the intense focus required to face the task, or it can determine the positive quality of the experience.

D9. Autotelic experience. This dimension refers to the intrinsic satisfaction produced by the task, independently on the original motivation and expected results. The task is easier to carry out when satisfaction emerges from executing it, without need for an external reward.

In virtue of these dimensions, optimal experience is actively searched for and, in particular, it is preferable to repeat those activities that allow experiencing it frequently. The state of flow favors individual development since, in order to be maintained and replayed within an activity, it induces a subject to search for action opportunities that get more and more complex, to which are opposed progressively more complex abilities. Because of these elements, and of the tendency to 'foster' these individual skills during the execution of flow activities, this experiential state represents the compass needle of *psychological selection* (Delle Fave et al; 2011), the basic selective criteria upon which the path of individual development is built.

From nine dimensions to mental preparation

Other than monitoring the quality of experience, interventions made at the right time can increase the chance of finding and building a state of flow again. In order to make this possible, a program of integrated

mental preparation must be promoted (Bull, 1991; Harmison, 2011; Muzio, Riva, & Argenton, 2012; Vealey, 2007) and it must keep these four factors into account:

- a *structural* one, oriented towards analysis and consideration of the athlete's psychological conformation;
- *functional*, for an optimization of elaboration processes of cognitive system's information;
- *psychophysiological*, oriented towards modulation of psycho-physical reactivity;
- *systemic*, for a situated athlete's conceptualization in the referring social contexts

At the same time, the mental preparation program must be shared with the athlete in three specific times (Weinberg & Gould, 2007):

- *Education*, aimed at developing the knowledge of how mental abilities influence performance and allowing to recognize their trainability;
- *Learning*, moment of acquisition of techniques and strategies necessary to the development of different mental abilities;
- *Training*, stage aimed at automatizing mental abilities and their transfer to the challenge.

We finally get to the point where we have to operatively take into account how the nine dimensions are a starting point and, at the same time, the objective of a mental preparation protocol.

<i>Mental Preparation: Tools and Techniques</i>	<i>Optimal Experience: Trainable Dimensions</i>
1. Psycho-diagnostic assessment	Optimal functioning profile Screening
2. Interview	Crosses all dimensions
3. Goal Setting	D3: <i>Clear Objectives</i>
4. Proprioceptive Training	D2: <i>Union between action and conscience</i> D4: <i>Immediate Feedback</i>
5. Stress Handling and Relaxing	D1: <i>Challenge-Skills balance</i> D4: <i>Immediate Feedback</i> D6: <i>Sense of control</i>

6. Thought control and self-talk	D1: <i>Challenge-Skills balance</i> D5: <i>Focus</i> D6: <i>Sense of control</i> D7: <i>Loss of Self-conscience</i>
7. Concentration	D5: <i>Focus</i> D6: <i>Sense of control</i>
8. Imagery	D1: <i>Challenge-Skills balance</i> D3: <i>Clear Objectives</i> D5: <i>Focus</i> D6: <i>Sense of control</i>
9. Ideomotor training	D1: <i>Challenge-Skills balance</i> D3: <i>Clear Objectives</i> D5: <i>Focus</i> D6: <i>Sense of control</i>
10. Evaluation	D1: <i>Challenge-Skills balance</i> D4: <i>Immediate Feedback</i>

Interview

The interview is dedicated to the start of a mental preparation path and it will have to support the construction of a trusting atmosphere, favored by empathy and assertiveness, in order to promote expression of attitudes, expectations and needs not only in the athlete, but in the entire surrounding environment.

Psycho-diagnostic assessment

The psycho-diagnostic assessment's aim is to evaluate the athlete's psychological characteristics, functioning in emotional and cognitive terms, as well as in perception of self in performance and training. In this stage, a great deal of attention must be dedicated to the relationship between flow and personality aspects. In this regard, Csikszentmihalyi (1990) highlighted how some individuals – *autotelic personalities* – are more predisposed to experience flow, irrespective of the situation. These differentiate for information processing, in maintaining attention for more time, as well as for the ability to see potential obstacles as challenges for one's growth

(Baumann, 2012; Delle Fave, Massimini, & Bassi, 2011; Keller & Bless, 2008; Nakamura & Csikszentmihalyi, 2011; Ross & Keiser, in press).

After a psychological profile is defined and latent or manifest psychopathological traits are possibly excluded or monitored, the assessment process will give indications regarding the style of the athlete's current functioning according to an integrated perspective (Tenenbaum, et al., 2012).

Goal Setting

Goal setting is a highly useful tool for sports performance improvement (Bandura & Locke, 2003; Nahrgang et al., 2013; Simões, Vasconcelos-Raposo, Silva, & Fernandes, 2012); it is influenced by a complexity of factors. Among them, the importance given to reaching a goal, the task's complexity, the level of perceived satisfaction and self-efficacy (Locke & Latham, 2013).

Specifically, goals support behavior in three modalities (Locke & Latham, 2013). They carry a *directive function*, an *energizing* one and they act on *persistence*. *Constance* and *commitment* are reinforced by these functions.

To be effective, goals must present a certain degree of challenge; they must be meaningful and realistic. They can be short, medium or long-term and *performance*, *process* or *result*-based goals (Locke & Latham, 2002).

Supported by strategies and methods to reach them, goals must be translated in operative plans, guaranteed by a constant monitoring of the athlete's progress. It's not a surprise finding that D3 is a crucial dimension for a profile of optimal functioning.

Proprioceptive Training

Depending on the athlete's perceptive-cognitive style, a proprioceptive training highlights the value, the improvement of perceptive sensibility and the kind of relationship with performance-supporting environmental elements, such as surfaces, tools and equipment. By doing so, it becomes possible to set a development program in D2 (*union between action and conscience*) and D4 (*immediate feedback*).

Stress handling and relaxing

Relaxing techniques favor acquisition of self-knowledge and body control, they allow monitoring and regulation of arousal levels in order to

handle anxiety states and psychophysical tension (Keller & Bless, 2008; Neil, Hanton, Mellalieu, & Fletcher, 2011).

The relationship between *arousal* and performance is influenced by individual characteristics. Being *arousal* a multidimensional phenomenon, the athlete will have to learn to recognize – starting from a flow situation – which is his own optimal activation balance (physiologically, emotionally and cognitively) in order to reproduce it. The effect on performance depends, mostly, on the perceived self-efficacy level and the athlete's trust in his or her skills.

Consequently, applying these relaxation and stress-handling techniques will permit the athlete to:

- Improve his or her knowledge in terms of optimal activation;
- Define situational and personal factors that influence activation, perception of anxiety and, consequently, performance;
- Recognize predictive signals of high arousal and anxiety levels during performance, increasing his own attention to D4 (*immediate feedback*) and modulating the *balance between challenge and skills* (D1) functionally;
- Re-interpreting psycho-physiological activation states, switching negative and non-productive aspects with positive and productive elements;
- Integrating his or her own *sense of control* (D6)

Thought control and self-talk

Thought's influence upon behavior can be noted mostly through *self-talk*, which expresses itself as an internal dialogue, being it silent or vocalized, and is aimed at increasing behavior control (Dagrou, Gauvin, & Halliwell, 1992; Hardy, Gammage, & Hall, 2001; Hardy, Hall, & Alexander, 2001).

This technique is a representation of the set of beliefs and expectations every athlete develops, in regards to his competitive efficacy. Studies in the motivational field suggest that feeling responsible for the control of one's own actions determines higher chances to be intrinsically motivated (Deci & Ryan, 1985) and, consequently, more predisposed to experience flow states.

Self-talk favors the development of *self-confidence*, of new skills and allows for correction of wrong automatisms (Muzio, et al., 2012).

After the education phase – not differently from the technical and physical ones – learning and training have to intervene.

Focus

An optimal handling of attention resources allows the athlete to exclusively focus on stimuli that are functional to his performance, to voluntarily switch attention on new information sources and keep focus on the selected stimuli (D5, *focus on task*). Some examples: the ability to control pain and exertion, or to tolerate frustration.

The selective system's efficacy increases progressively with experience and competitive level. Uncontrolled and insufficient attention focus changes can damage performance. Distractors can be external (spectators, climate conditions, rivals, referee...) or internal (exertion, pain, anxiety, frustration, excessive self-monitoring, continuous control).

Among the methodologies used for the development of attention control abilities, (Memmert, 2009; Nideffer, 1985, 1992; Nougier, Stein, & Bonnel, 1991) there are imagery, structuration of aimed training sessions, use of routines.

Imagery

Visualization techniques or *imagery* support the voluntary creation of an experience – exclusively mental – that reproduces real experience (Moran, Guillot, MacIntyre, & Collet, 2012; Murphy & Martin, 2002). They can be represented by visual images, tactile and proprioceptive sensations, smells, tastes and sounds.

In evaluation phase, it is necessary to investigate, for every athlete, the personal meaning that evoked images have and the emotional reactions that derive from them (Gregg, Hall, McGowan, & Hall, 2011).

The perspective according to which the images are visualized can be internal or external. In the first case, the athlete visualizes him or herself from an internal angle, as if he/she is actually carrying out the imagined task. In the latter case, the athlete visualizes him or herself as a spectator.

The choice of one or the other perspective depends from the athlete's spontaneous tendency (personality aspects) and the visualized situation (discipline's specific characteristics). The use of mental images results effective in the development of focus skills, self-trust, emotional reactions control, technical and tactical skills, and optimization of time needed to recover from injuries.

In applying imagery to mental training, it is useful to observe some indications, in order to optimize its efficacy (K. A. Martin, Moritz, & Hall, 1999): vividness, multi-sensoriality and controllability are essential.

Ideomotor Training

The use of imagery is put into effect in ideomotor training programs, meaning, all forms of exercise where a mental self-representation is present and is systematically repeated and conscious, of the motor action to be learned, perfected or stabilized, in absence of an externally visible execution – of partial or global movements (Koch, Keller, & Prinz, 2004; Shin, Proctor, & Capaldi, 2010).

Ideomotor training carries out different functions, such as *programming, training and regulation*.

Evaluation and Follow Up

Evaluation requires constant monitoring of the athlete's progress and results through integrated tools. The development of mental abilities requires time investment and a methodical application. Supportive tools such as structured interviews and evaluation forms come to use in this regard. Their use allows to support qualitative feedback such as feelings, thoughts and affective states as well as quantitative kinds of feedback. (Tenenbaum, 2012) .

Future directions

The informational, fact-finding and technological fluidity that characterizes our everyday life sees an essential resource in innovation, both to compete at best and to start an individual and social empowerment program.

In this scenario, the search for results does not only attract the world of sports, but the business field as well, not always of the idea that well-being and success can be related (Csikszentmihalyi, 2004). After all, sports and business are similar realities, characterized by competitive contexts, in which a careful handling of the human capital can make the difference between success and failure.

Much like in sports, flow can represent a surplus value in organizational contexts as well. It is, in fact, significantly correlated to improvement of performance, of satisfaction levels in employees, collaborators and clients, as well as to low levels of absenteeism (Bakker, Schaufeli, Leiter, & Taris, 2008; Fullagar & Kelloway, 2009; Rolle, 2010; Taris, Cox, & Tisserand, 2008).

The multidimensional structure of the Flow construct, if applied to a business setting, assumes that, to reach a state of optimal functioning, the individual needs challenging tasks, clear, realistic objectives and adequate feedback.

In this light, an evaluation tool such as the Flow State Scale can contribute to the start of change projects aimed at improving concrete and specific areas.

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