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PSYCHOLOGICAL DETERMINANTS OF THE TRAJECTORIES OF SELF-QUANTIFICATION AND DIGITALIZATION OF PROFESSIONAL CYCLISTS' PHYSICAL ACTIVITY: THEORETICAL AND METHODOLOGICAL CONSIDERATIONS

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Abstract: *Digitalization and self-quantification have permeated the field of high-level sport, particularly professional cycling. The data generated by connected objects and applications are used to improve riders' performance. However, no longitudinal study has documented the dynamics of the psychological determinants of professional cyclists' trajectories in digitization and self-quantification. To this end, the present research elaborates on the theoretical and methodological considerations regarding a longitudinal protocol, within the framework of a mixed research method.*

Key words: *cyclism, longitudinal, mixed-method study, quantified data, self-tracking.*

1. Introduction

In a globalized, increasingly connected and digitalized world, quantification practices have irrigated the various spheres of our contemporary societies: Health, medicine, research, work, school or sport (Lupton, 2016). The field of elite sport has particularly surfed on the digital wave, making its entry into the era of Big Data and functioning "as a laboratory of the possible, a place of acclimatization of these new performance technologies" (Dalgalarrondo, 2018, p. 111). Indeed, many connected objects

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(*wearables*[4]) or mobile applications are now used in professional sports (Toner, 2024) to collect, store, visualize, process and share activity data (Soulé, 2021). In the age of "data science" [5] (Dagiral & Parasie, 2017), these data-tracking technologies thus contribute to objectifying athletes' activity, rationalizing, optimizing and individualizing the various components of their training in order to improve performance[6] (Dalgalarrondo, 2018; Delalandre, 2009; Sedeaud, 2024): "these devices make it possible to render tangible, to objectify the evolution of the athlete's characteristics: his or her state of fitness, physical and technical qualities. These various evaluations, whether in the form of one-off assessments or regular monitoring, are a resource for coaches, who have a profile of the athletes they are training, and the information they need to determine their priorities and plan their sessions. A database containing information on training and competitions (loads, durations, reactions to training, competition results, injuries, etc.) enables all kinds of data to be stored, and is also an aid to training programming." (Delalandre, 2009, p. 281).

In the vast world of sports digitalization (Soulé, 2021), it is important to understand the difference in nature between, external quantification and auto-quantification. On the one hand, external quantification is carried out by others, and intended primarily for the coach, the staff (e.g., Dalgalarrondo, 2018), and secondarily - even optionally - to the athletes. Athletes are not involved in the process of collecting, analyzing and interpreting data (e.g., Hartley, 2021), which remains the prerogative of data scientists (Dagiral & Parasie, 2017). Indeed, "Technologies in sport are now deployed by a team of scientists who may possess a range of disciplinary expertise. For example, many high-level teams employ "data scientists" or "data engineers" to unlock the full potential of data. These particular roles often require applicants to have expertise in programming, statistics, and visualization techniques." (Toner, 2024, p. 58). Thus, in this configuration, interactions between technical staff and athletes remain largely asymmetrical, with the latter having no say in this largely prescriptive operation (Groom et al., 2012).

On the other hand, auto-quantification (or self-tracking) (Lupton, 2016) is considered as "a reflexive mode of practice that is adopted by people as a way of learning more about themselves by noticing and recording aspects of their lives, and then using the information that is gathered to reflect on and make sense of this information" (Lupton, 2018, p. 1). This approach which is the focus of the present research refers to individual quantification, carried out directly (non-mediated) and autonomously, by oneself, on

[4] « Wearables can be defined as small, lightweight devices worn on, close to, or even in the body where they monitor, analyse, transmit, and/or receive data from other devices and/or cloud services to provide biofeedback in real time to the user » (Toner, 2024, p. 7).

[5] "(...) data science. First appearing in the early 2000s, this expression refers to a set of practices, knowledge and technologies located at the crossroads of the worlds of computer science and statistics" (Dagiral & Parasie, 2017, p. 86-87).

[6] « The spread and intensification of technological systems in elite sport is underpinned by a belief that the collection of vast quantities of data followed by the application of sophisticated and intelligent analytical procedures can provide an objective picture of an athlete's current performance and future potential » (Toner, 2024, p. 19).

oneself and for oneself (Pharabod et al*.,* 2013). In this context, self-quantification would be exploited mainly in individual sports (Ng & Ryba, 2018), following the example of cycling (e.g., Boudokhane-Lima, 2018) where multiple digital tools are exploited by athletes, before, during and after their practice to measure their activity: from helmets to connected shorts through all sorts of sensors (e.g., GPS, cell phones, watches or even connected bracelets), but also software and digital platforms for analyzing and tracking sporting activity such as Garmin Connect, Velobook, Strava, Golden Cheetah, PowerAgent, TrainingPeaks WKO+[7](Boudokhane-Lima, 2018). The rider then collects, stores, visualizes, processes and shares multiple data with the staff: "speed (instantaneous, average, maximum), power (in the same way), heart rate (ditto), pedaling cadence (ditto), gear ratio used (some models even allow you to change the gear used at the touch of a button, without any mechanical action, or even change it automatically according to other parameters, such as pedaling cadence, speed and slope percentage), altitude (instantaneous, minimum, maximum), difference in height (positive, negative), slope percentage (instantaneouś and maximum), temperature" (Verchère, 2016, p. 116). However, unlike recreational athletes, who can voluntarily engage in self-quantification, elite athletes do not necessarily have this freedom, and are most often subject to data surveillance (Toner, 2014). In the case of professional cyclists, self-quantification is "imposed" (Lupton, 2016, p. 143) externally (e.g., by the coach or manager) and for communicative purposes (e.g., transmitting the data collected to the staff, on social networks or sharing platforms) (Boudokhane-Lima, 2018), even though this self-data entry is carried out autonomously - by oneself - and more often than not on an individualized basis (Le Grupetto, 2019[8]; Guidetti, 2021[9]). Indeed, in a sporting field governed by performance imperatives, the digitalization culture of modern cycling, particularly since the rise of the World Tour (2010), has led professional teams to mobilize plural technological and scientific resources in order to plan, rationalize, individualize, supervise and evaluate riders' training and performance on the basis of quantitative data (Aubel et al*.,* 2015). Nevertheless, if elite cyclists are required to self-quantify, no doubt some data escapes staff control, and athletes negotiate spaces of freedom to hide data they would not wish to be communicated.

Consequently, top-level cycling appears to be a "privileged field of study for investigating the emergence of these technologies" of data-tracking (Verchère, 2016, p. 116). In particular, the tension between constrained and autonomous self-quantification, and their consequences on athletes' lived experiences are of interest.

Few studies have actually documented the lived experience of digitization and self-quantification in elite sport. An analysis of the psychological and sociological literature reveals ambivalent experiential consequences of self-tracking.

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[7] "The data collected is transferred there to be studied. Training programs are adapted on the basis of these analyses, explain the cyclists and coaches interviewed. These technologies are now replacing the paper training logbook; they offer multiple functionalities: reports, statistics, graphs, planning, coaching, data sharing..." (Boudokhane-Lima, 2018).

[8] https://legruppetto.fr/2019/01/les-coureurs-racontent-lentrainement/

[9] https://www.guidetti-sport.com/fr/blog/rencontre-avec-stephen-roux-ultra-trailer-n133

On the one hand, digitalized self-quantification would promote an increase in athlete motivation by stimulating a sense of competence, accomplishment and self-efficacy (e.g., Hassan et al., 2019; Rapp & Tirabeni, 2020; Yang et al., 2019). Confrontation with the traces of one's activity would also generate positive emotions associated with the gamification of cycling (Barratt, 2017), and would be particularly effective in breaking the routine and avoiding boredom during the training session (Toner, 2024). Other studies have emphasized the added value of self-monitoring in improving athletes' performance (Saw et al., 2015) or the quality of their sleep and recovery (Jakowski, 2022). In the running sphere, real-time self-quantified data enable experienced runners to improve their performance (Clermont et al., 2020), regulate their running pace, moderate their cardiorespiratory parameters during exercise and adjust their training session (e.g., Karahanoglu et al., 2021; Rapp & Tirabeni, 2018). In this respect, Clermont et al. (2020) demonstrate that expert runners are more sensitive to particularly sharp and specific quantitative variables (e.g., ground contact time) than beginners, who make greater use of connected tools to boost their motivation. What's more, elite athletes are able to put their bodily sensations into dialogue with quantitative datasets to construct doubly numerical and sensory knowledge (Rapp & Tirabeni, 2018): “Data provided by the tool can then ‘teach’ the athlete that different body sensations can be retraced to the same physiological condition” (p. 10).

By contrast, digitization and self-quantification can also substantially alter the quality of living experience (Quidu, 2019). Thus, several experimental works (Attig & Franke, 2018; Etkin, 2016) reveal that the simple fact of knowing oneself to be measured (whether in walking, drawing or reading) induces, certainly, an immediate increase in productivity, but also, in the longer term, an increase in anxiety associated with a decrease in intrinsic motivation, pleasure, well-being and persistence. For instance, Togstad and Alsos (2018) highlighted an increase in stress coupled with an exacerbated tendency to social comparison. Receiving biofeedback describing performance below expectations can lead to experiencing negative emotions such as anxiety, shame, guilt (Attig & Francke, 2018), disappointment, frustration, or anger (Lupton, 2018). Indeed, Kennedy and Hill (2018) have demonstrated that the visualization of data by top-level athletes induces a salient affective experience, likely to generate multiple emotions such as confusion or frustration when the performance achieved is not what was expected. For example, elite soccer players experience feelings of anxiety and embarrassment when forced, during data analysis sessions, to observe or even comment on their mistakes in front of their teammates (Middlemas & Hardwood, 2018). In doing so, to keep face, some soccer players disengage during these collective data analysis times. Similarly, the quantification of performance can generate feelings of vulnerability and anxiety in top-level rugby players, who dread how this data will then be used to describe their performance (Manley & Williams, 2022), again highlighting the affective content of data visualization in the professional sporting sphere. The time it takes to consult and analyze data is accompanied by levels of distrust, anxiety, fear and insecurity (Manley & Williams, 2022). From this perspective, Jones et al. (2016) argue that while digital self-

quantification tools can be exploited to streamline and optimize athlete preparation, they can also become veritable instruments of discipline. These authors underline the extent to which the panoptic surveillance of practitioners by trainers or staff, mediated by these digital measurement devices, can be experienced as oppressive by athletes. Quantified data can then be used to sanction elite athletes. However, another study has tempered these results by showing that, while the object of self-measurement can be motivating or, conversely, stressful for beginners, these psychological consequences (both positive and negative) disappear for elite athletes in various activities (e.g., swimming, cycling, triathlon, mountaineering, skiing, trekking), who have become accustomed to its systematic, daily use during training sessions (Rapp & Tirabeni, 2020).

Otherwise, the sometimes inadequate and unreliable production of data generates frustration among elite trainers and coaches, who sometimes doubt the ability of quantified data to capture the totality and complexity of the processes underlying human performance (Luczak et al., 2020). In addition, athletes point to the lack of interest or even waste of time associated with filling out multiple questionnaires about their fitness (Neupert et al., 2019). This study also reveals that to avoid being squeezed out of training or having their training program modified, some elite athletes fill in false data. In this vein, several other works have highlighted athletes' reluctance to share honest data about their health status, for fear of potential repercussions (Saw et al., 2015).

Another research, grounded within a phenomenological perspective, reveals that consulting the quantitative data generated by the self-quantification device in real time can disrupt the runner's attention and concentration on the task (Little, 2017). Put another way, while on the one hand quantitative information can help athletes become aware of their motor skills, body parameters and technical efficiency, on the other hand, consulting data in real time can disrupt the athlete, particularly when a discrepancy is noted between the numerical data and the sensory experience (Toner, 2024). Toner et al. (2023) show that, during easy runs of the recovery type, semi-professional runners avoid looking at the quantification tool - which is forgotten, invisibilized - and let themselves go to sensation, in an immersive, perceptual mode, mobilizing an incorporated somatic repertoire. Toner et al. (2023, p. 811-812) report, for example, the verbatim of one of the runners interviewed indicating that he did not hesitate to hide the portable self-tracking device to avoid disturbing the quality of his bodily experience during these “easy runs”: “I sometimes go out and just put my watch on underneath my wrist or something so I can't see its face, or I might put in my back pocket or something”. In addition, this study reveals that consulting data in real time can induce a social pressure of competition, in contradiction with the nature and purpose of these easy run sessions, which turn out to be times for recuperation and social interactions. Some elite runners also deliberately ignore data when race conditions prove particularly demanding. In this vein, research reveals that while amateurs have great confidence in the data generated by the quantification tool, elites tend instead to give primacy to their sensory perceptions (Rapp & Tirabeni, 2018).

But what about the living experiences of professional cyclists, whose day-to-day interactions with self-quantified data are both autonomous and externally constrained by the staff? In this perspective, is the social sharing of performance, from athlete to staff, the object of potentially multiple and variable strategies on both inter-individual and intra-individual scales, of self-presentation and concealment (Goffman, 1973), which lead the latter to communicate (possibly according to plural modalities) certain numerical data, and not others (control), to the team staff? And how do their psychological dynamics evolve over the course of the sporting season and any fluctuations in their performance? To our knowledge, no longitudinal study has documented the dynamics of the psychological - self-esteem, motivation, emotions, emotional regulation, individual judgments attributed to the digital device, and acceptability of the technology - determinants of professional cyclists' trajectories in digitization and self-quantification.

2. Objective

The aim of this study is to explore the dynamics of the psychological determinants of professional cyclists' trajectories in the context of quantification and digitization. Four psychological constructs in particular are investigated in these elite athletes. Firstly, we chose to study self-esteem because this construct is particularly dynamic and evolves on an intra-individual scale (e.g., Delignières et al., 2004), and can, moreover, be degraded in the case of self-tracking (Rooksby et al., 2014). Secondly, cyclists' motivation is studied because this construct proves particularly variable and fluctuating in high-level athletes (e.g., Martinent et al., 2018) and self-tracking tends to generate a shift from intrinsic to extrinsic motivation (Etkin, 2016). The challenge is therefore to test, in the case of high-level cycling, these hypotheses concerning the influence of self-quantification on athletes' motivational dynamics. Thirdly, we wish to examine emotional processes, which evolve in a competitive sporting context and vary according to the individual (e.g., Cece et al., 2019), and are particularly sensitive to the visualization of self-quantified data, both positively when performances are above expectations (e.g., Barratt, 2017) and negatively, when they are below expectations (e.g., Manley & Williams, 2022). Fourth, we find it interesting to document the emotion regulation strategies deployed by elite cyclists to cope with possible negative experiential consequences of self-quantification bearing in mind that the use of which is common in the professional sporting sphere (e.g., Martinent et al., 2015).

Complementarily, we wish to examine the cyclists' relationship with the digital self-quantification device. Indeed, it seems heuristic to investigate in particular the way in which these athletes become attached to or detached from the digitalized device (e.g., Toner et al., 2023), the trust they attribute or not to the data generated by the tool (e.g., Newpert et al., 2019), the relationship they establish between the self-quantified data and their somatic knowledge (e.g., Rapp & Tirabeni, 2018), the way they perceive the self-measurement tool as disruptive (e.g., Little, 2017) or as helping them to perform -

and, if applicable, the quantitative variables they take into account during their activity (e.g., Clermont et al., 2020).

In essence, by focusing our longitudinal study on professional cyclists who are familiar with self-quantification (Boudokhane-Lima, 2018), the challenge is to examine the dynamics of these psychological constructs, through a granular temporal resolution, in order to identify intra- and inter-individual (micro-)variations. The study of the dynamics of lived experiences of self-quantification in elite cyclists could thus contribute to the literature on the digitization of elite sport (Toner, 2024, for a review) and follow on from works that have focused on documenting the practices and lived experiences of self-quantification among everyday cyclists (e.g., Lupton, 2018; Lupton et al., 2018; Pink et al., 2017), more experienced club members (Barratt, 2017) or professionals (Boudokhane-Lima, 2018).

3. Method

In this section, we propose the methodological foundations of the longitudinal protocol to be conducted shortly.

3.1. Participants

A longitudinal protocol will thus be conducted for 3 months on a team of professional cyclists (N=10) in order to examine the dynamics of the psychological determinants of their trajectories in digitalization and self-quantification. The cyclists studied are part of a professional team registered in the “Pro Tour” division, train intensively every day and take part in national and international competitions every season.

The experimental design of the study will be carried out in accordance with the international ethical guidelines and data protection conditions (Declaration of Helsinki). The athletes participate voluntarily and gave their written informed consent. We approached the head coaches of the centers and the parents a few months before the program to ensure their agreement for the procedure before the beginning of the season.

3.2. Measures

The present longitudinal study falls within the framework of a mixed research method (MMR), defined by Creswell and Plano Clark (2018) as a method “that includes at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither type of method is inherently linked to any particular inquiry paradigm” (p. 256). We see this mixed-method approach as particularly heuristic for enriching and deepening our understanding of the dynamics of the psychological determinants of the trajectories of top-level cyclists in the self-quantification of their sporting activity (complementarity function), while at the same

time reinforcing, through triangulation, the robustness of the empirical results (triangulation function) (Greene et al., 1989).

From a quantitative point of view, the longitudinal protocol is characterized by over time repeated measurements on the same sample, and aims to identify relationships between the dynamics of the variables studied (Rindfleisch et al., 2008). Nevertheless, such a methodology makes the repeated administration of multi-items questionnaires over time to professional athletes inconceivable (i.e., impossibility for participants to repeatedly complete a battery of questionnaires each comprising several items in a relatively short period of time) (Martinent et al., 2016). Acknowledging these limitations, a single-item quantitative definitional approach will be adopted based on the rationale that previous studies provided evidence for this methodological approach in the field of sport psychology (e.g., Doron & Martinent, 2016). This consists in summarizing a given concept (e.g., state of anxiety) in a brief paragraph and proposing this definition to the athlete in order to assess this concept repeatedly, preferably using a visual analogue scale (Martinent et al., 2016). Put another way, the idea is to be able to repeatedly collect data from athletes despite the limited time they are willing to give.

Professional cyclists will be invited to complete two questionnaires grounded within a single-item definitional approach every week for 10 weeks. The first questionnaire aims to explore the psychological determinants of cyclists' self-quantification and digitization trajectories. More specifically, self-esteem will be measured using the Physical Self Inventory (IPS-6) questionnaire (Ninot et al., 2001), using 6 items: global self-esteem, perceived physical value, physical condition, sport competence, attractive body, physical strength. This questionnaire is validated in the field of sports psychology and designed for longitudinal protocols. Motivation will be measured using 6 items from the Behavioral Regulation Sport questionnaire (BRSQ) (Lonsdale et al., 2008): intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation and amotivation. In addition, the satisfaction of psychological needs will be assessed using 3 items for autonomy, competence and relationship, inherited from the BPNSS scale (Gillet et al., 2008). Achievement goals will be documented using four items, taken from the French Achievement Goals Questionnaire for Sport and Exercise (FAGQSE): mastery-approach goal, mastery-avoidance goal, performance-approach goal, performance-avoidance goal (Riou et al., 2012). Emotional experiences are measured using five items from the Sport Emotion Questionnaire (SEQ), corresponding to anxiety, anger, excitement, depression and happiness (Jones et al., 2005). Finally, emotional regulation will be assessed using the State Emotion Regulation Inventory (SERI) which is composed of four items (*i.e.,* distraction, reappraisal, brooding and acceptance, Katz et al., 2017). Therefore, the athletes will respond to all of these items using a using a visual analog scale delimited at the left and right by the respective labels “almost never” and “most of the time”.

Complementary, in order to examine the individual's relationship with the digital self-quantification device, which is likely to vary over the course of the sporting season as cyclists' performance evolves, a second questionnaire will be administered to the

athletes. On the one hand, we will measure individual judgments attributed to the digital device according to 7 descriptor categories (“useful” versus “useless”; “pleasant” versus “unpleasant”; “beautiful” versus “boring”; “efficient” versus “superfluous”; “irritating” versus “sympathetic”; “helpful” versus “worthless”; “undesirable” versus “desirable”) built on the basis of the New Technology Acceptance Scale (Van der Laan et al., 1997).The cyclists are asked to respond to this scale using a 10-point Likert scale with scores ranging from 0 (the first descriptor) to 10 (the second descriptor). On the other hand, we will evaluate how cyclists appropriate the self-tracking tool and integrate it into their practice, using 6 items, inherited from The French eHealth Acceptability Scale Using (Hayotte et al., 2020): “performance expectancy”, “effort expectancy”, “social influence”, “facilitating condition”, “hedonic motivation”, “habits”. The athletes are asked to respond to this scale using a 10-point Likert scale with scores ranging from 0 (« strongly disagree ») to 10 (« strongly agree »).

In addition, qualitative data will be collected from three interviews conducted with each cyclist during the three months of longitudinal follow-up. During the first month, a first semi-directive interview will be conducted following a training session with the digitalized self-quantification device. A second semi-structured interview will be conducted following a training session with the self-tracking tool in the second month in order to appreciate the dynamics of the lived experience. Finally, in the third month of follow-up, a retrospective interview will be carried out with each cyclist to review the longitudinal follow-up. In this context, the quantitative data will also serve as an anchor to guide the cyclists' verbalizations during the various interviews.

In consequence, these two questionnaires, by making it possible to evaluate the dynamics of four psychological constructs - self-esteem, motivation, emotions, emotional regulation - and of the relationship maintained by the athlete with the tool, coupled with these three interviews will make it possible to longitudinally examine intra- and inter-individual variations in the trajectories of professional cyclists in self-quantification and digitalization.

3.3. Data analysis

The mixed quantitative and qualitative data are analyzed according to the logic of “explanatory sequential design” (Creswell & Plano Plark, 2018), which consists of first collecting and analyzing the quantitative data, then in a second step, carrying out the collection and analysis of the qualitative data in order to explain or deepen the quantitative results.

The first step, the quantitative phase, will take the form of a multi-level growth curve analysis (trajectory analysis) of the quantitative scores (i.e., self-esteem, sport motivation, emotions, emotion regulations, individual judgments attributed to the digital device, and acceptability of the technology). Indeed, “Multilevel models are particularly indicated in the case of longitudinal protocols in the sense that they enable the evaluation of inter-individual differences in intrapersonal changes over time” (Cece

et al., 2019, p. 81). This method of analysis thus makes it possible to model the temporal evolution of a variable over time, while allowing a reading of inter-individual differences, particularly in terms of intercept, linear or quadratic slope (Wright & London, 2009). In addition, this approach is particularly flexible insofar as it supports missing data, something appreciable for researchers engaged in longitudinal protocols where the risk of missing values is high compared with cross-sectional analyses (Cece et al., 2019).

Complementary to this, in a second phase, a qualitative thematic analysis will aim to explain the quantitative results on an intra-individual scale, while at the same time allowing us to identify, inductively and by comparison, differentiated profiles of cyclists' trajectories in self-quantification and digitization. In concrete terms, a thematic content analysis (Bardin, 2013) will be carried out to select elementary units of meaning from the interviews, then to group and classify them into various themes and sub-themes that promote their intelligibility, so as to be able to compare the content of the interviews with the different cyclists. More precisely, this approach to analyzing qualitative data is operationalized through a vertical and a horizontal thematic analysis, leading to a vertical and a horizontal synthesis. Vertical or intra-interview thematic analysis aims to identify, on an intra-individual scale, the themes - and sub-themes - addressed in the subject's words. In addition, in horizontal or inter-interview thematic analysis, for each theme, the answers provided by the interviewees are compared to identify areas of convergence - typicality - or divergence from one subject to another. In essence, while the vertical synthesis enables us to synthesize what each individual has answered to all the given themes, the horizontal synthesis leads us to consider what all the individuals have answered to a given theme. From then on, the relevance, quality and scientific validity of these analyses will depend on how the various interviews are compared and related to each other, so as to be able to envisage both convergences and divergences within the discourse of one cyclist to another with regard to the various themes and sub-themes elaborated.

4. Conclusion

In conclusion, the aim of this study is to explore the dynamics of the psychological determinants of professional cyclists' trajectories in the context of quantification and digitization. In particular, we will examine the consequences of self-quantification on the dynamics of the lived experiences of high-level cyclists, who are forced by the staff, to self-measure themselves independently and then communicate the data to them. From this perspective, we wish to investigate the way in which these elite athletes deal with this imposed self-tracking to possibly negotiate margins of autonomy and preserve their lived experience.

The longitudinal protocol operationalized on professional cyclists could be in line with longitudinal studies, carried out in the psychological field of high-level sport, which have sought to document the motivational and emotional dynamics of athletes in intensive training centers (e.g., Cece et al., 2018; Gaudreau et al., 2009), or during competitions

(e.g., Doron & Martinent, 2016).

As a whole, further insight of the dynamics of lived experiences of self-quantification in elite cyclists could contribute to the literature on the digitization of elite sport (Toner, 2024, for a review) and follow on previous research that has focused on documenting the practices and lived experiences of self-quantification in everyday cyclists (e.g., Pink et al., 2017; Lupton, 2018; Lupton et al., 2018), more experienced club members (Barratt, 2017) or professionals (Boudokhane-Lima, 2018).

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