

Thesis subject: Psychological and physiological antecedents of performance and health in trail-running
Laboratory of assignment: SENS UR3742, HP2 U1042 - INSERM

Context and work environment

Structure description

Trail-running is an activity that has been expanding rapidly over the last ten years. More and more people are engaging in this activity, with more or less high-performance goals and more or less significant benefits for their mental health. Although trail running is increasingly investigated through scientific studies, many grey areas remain, notably on the socio-psychological profile of the participants, their direct relationship to the activity and the existing links between the different psychological and physiological components of their lifestyle such as sleep, nutritional behavior, life balance, and the development of some psychopathologies or their well-being. The objective of this research project is to better understand who trail-runners are, what characteristics they share, how their more or less excessive involvement (i.e., harmonious/excessive passion) in this activity predicts certain physiological, behavioral, and psychological consequences, and how these consequences are interrelated. This research project is based on a strong partnership between the SENS and HP2 research laboratories, and the organization of the Ut4M competition which will be the privileged research field for this doctoral project.

Team description

The project will be supervised by Stéphane Doutreleau of the HP2 lab and in close collaboration with Clément Ginoux from SENS lab. The team will be composed of tens of other colleagues from these labs and from partners' companies (e.g., Diabeloop), who will be included in the project's team.

Position's mission and main activities

Mission:

Within the framework of the CDP, we aim to understand the socio-psychological and physiological determinants of the commitment in the practice of trail running, and the consequences of this commitment on the performance and the mental health of the practitioner, through physiological, behavioral and psychological indicators. To achieve this goal, several objectives associating physiological and psychological factors will be pursued:

- Phenotype a population of trailers by focusing on describing and measuring different psychological (e.g., passion, motivation, personality, affects), physiological (e.g., sleep, blood sugar, cardio-respiratory capacities) and socio-demographic (e.g., gender, age, level, and sports background, professional or family environment, etc.) variables;
- To study the interaction of these different parameters in the improvement of training and racing performances, and their impacts on the mental health of the runners in the short and medium term.
- To study in an ecological context (i.e., training weeks) or in a competitive context (i.e., during a race) the evolution of these physiological, behavioral and psychological variables and to observe their connections and their influence on the performance and mental health of the runner.

Main activities:

1. To analyze the existing literature to identify the existing interactions between psychological (e.g., motivation, personality, affect), physiological (e.g., sleep, blood sugar, cardiorespiratory capacity) and socio-demographic (e.g., gender, age, level and history of the sport, professional or family environment, etc.) variables,
2. To test these relationships through a cross-sectional study based on large-scale questionnaires.
3. To collect longitudinal data allowing to examine the evolution of physiological, behavioral, and psychological variables over short (i.e., week) and long (i.e., several months) periods.
4. Coordinate and organize the collection of data in a running situation, in order to monitor the variables of interest during a race.

WP1. Multidimensional assessment

Carrying out systematic phenotyping on the physiological and health level with particular attention to nutrition, glycemic control and sleep; as well as on the psychological level through motivation, passion, personality, affects, and cognitive processes in racing.

WP2. Personalized interventions and longitudinal follow-up

Implementation of a longitudinal follow-up (i.e., from one week to several months) during the training season (before the race) including simultaneous assessments of day and night glycemic control (Holter), sleep data (dream band), training data and psychological parameters (ego depletion, affect, achievement goals). The relationships between these variables will also be investigated over a shorter period of time in a competitive context.

WP3. Data analysis, modeling, and prediction

Use statistical models of latent profile growth analysis and multilevel growth models to predict the evolution of these variables and establish a model to predict the influence on the practitioners' performance and physical and mental health.

WP4. Transfer and scientific societal valorization

This project is one of the first attempts to associate physiology and psychology laboratories in the field of trail-running. This approach is innovative and uncommon. The emergence of this new synergy at UGA will find many connections with non-academic partners (i.e., trail-running competition organizers), as well as close links with trail-running associations. One of the strongest contributions will be the scientific dissemination and mediation of the results to the trail-running community, so that they are the first beneficiaries.

Restriction or constraints related to the position

None.

Desired profile

Expected skills (priority):

This project will suit a student with a strong background in social and/or cognitive psychology as well as physiology (sleep, nutrition). The student should have a strong interest in understanding the joint influence of psychological and physiological factors on performance and health; as well as a strong motivation to organize and coordinate the collection of data online and in a laboratory or ecological context.

● **Trade skills/ expertise**

Theoretical knowledge in sport psychology is expected, combined with a strong interest in physiology and skills in performing physiological measurements in the laboratory. On the other hand, skills in designing statistical prediction models and data management are recommended, as well as skills in conducting "field" experiments and monitoring cohorts of subjects over time.

● **Personal skills**

The ability to adapt to work in a group with diverse skills (from a psychology/physiology researcher to a manager of a national trail-running competition event to a developer of measurement devices) is expected. Versatility, autonomy, sociability, adaptability, and above all organization and coordination of projects are strongly recommended.

Desired professional experience: ☒ beginner ☐ 2 to 5 years

Previous formation, diplomas:

Sport sciences or physiology Master.

General information

Contact for the questions related to the position:

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à compléter en anglais

Informations projet de recherche

Description du sujet	The objective of this research project is to better understand who trail-runners are, what characteristics they share, and how their more or less excessive involvement (i.e., harmonious/excessive passion) in this activity predicts certain physiological, behavioral and psychological consequences, and how these consequences are interrelated. This research project is based on a strong partnership between the SENS and HP2 research laboratories, and the organization of the Ut4M competition which will be the privileged research field for this doctoral project.
Sujet de thèse	Psychological and physiological antecedents of performance and health in trail-running
Mots clés	running, health, performance, effort, fatigue, psychophysiology
Champ scientifiques	Psychology, Physiology
Champs scientifiques secondaires	
Ecole doctorale	École doctorale Ingénierie pour la santé, la Cognition et l'Environnement
Directeur de thèse (NOM Prénom, mail)	DOUTRELEAU Stéphane
Co-encadrant (NOM Prénom, mail)	GINOUX Clément
Co-tutelle	NON
Co-financement	NON

Calendrier

Date début diffusion	21/11/2022
Date fin diffusion	13/12/2022
Date limite candidature	13/12/2022
Date pré-sélection (facultatif)	
Date début entretien	14/12/2022
Date résultats sélection	21/12/2022
Date début de contrat	01/01/2022

Dossier candidature

Documents à fournir	CV
	LM
	Lettre de recommandation
	Articles
	Relevés de notes universitaires