

# Breaking Human Limits: Identifying the Reasons which Compel Athletes to Run Ultra Distances

**Nadia Portelli**

nadia.portelli@um.edu.mt

## Abstract

This paper aimed to investigate the lived experiences of ultra trail mountain runners to make meaning of the reasons why they felt the need to run vast distances over mountain trails and endure the extreme hours and pain to reach their goal. Three experienced ultra trail runners who participated in various ultra trail races registered with the International Trail Running Association (ITRA) were recruited. In depth interviews were conducted to answer the exploratory question: “Can you describe your experiences when running a mountain ultra trail?”. The participants verbally stated their experiences which were then transcribed. Thematic analysis (Braun and Clarke, 2006) was used to analyse the data collected. Significant findings which emerged from the data included the disassociation the mind from the body, where the participants even described a feeling of war between the two. They also anticipated that the ultra was going to be painful, so they devised strategies to cope with the pain throughout the duration of the race.

None of the participants referred to the ultra as a race but rather as a journey and described it as a learning experience comparable to the journey of life.

**Keywords:** ultra trail mountain running, challenge, pain, journey.

Ultra trail running is an extreme endurance sport, involving distances which exceed the marathon distance (42.2 km). Sirch (2014) categories it as an “extreme endurance sport” which is “characterised by long distances” (p.7).

According to the International trail running association (ITRA):

Trail-running is a pedestrian race open to all, in a natural environment (mountain, desert, forest, plain...) with minimal possible paved or asphalt road (which should not exceed 20% of the total course). The terrain can vary (dirt road, forest trail, single track...) and the route must be properly marked. The race is ideally – but not necessarily – in self-sufficiency or semi self-sufficiency and is held in the respect for sporting ethics, loyalty, solidarity and the environment (ITRA, n.d.).

Ultra distance running was recognised as a distinct discipline by the International Association of Athletics Federation (IAAF) in 1988.

This paper will focus on *ultra trail mountain running*, a very specialised ultra distance which involves running on trails across mountain ranges or massifs with thousands of metres of elevation gains and losses. Races can range from 50 km to over 300 km, mostly at high altitude over mountain paths, treacherous terrain with rocks, boulders, scree and ice.

Due to the extreme distances and technical terrain, an average runner takes about 20 to 24 consecutive hours to run 100 km with more than 6000 m of elevation gain. Participants suffer fatigue, muscle cramps and inflammation, nausea and stomach issues, problems associated with high altitude, sleep deprivation and hallucinations. Jurek (2012) believes that “the distance strips you bare” (p.123). According to Askworth (2003), “This is how death must feel. Not the pain, although I imagine most deaths must be painful, but the fear...Every muscle in my body is shaking, both feet are blistered raw...” (p.1).

The finishing rates in such mountain ultras are not very high when compared to road marathons. During the 2018 Madeira Island Ultra Trail (115 km, +/- 7100 m), 63.4% finished the race (MIUT, 2018). This is in sharp contrast to the 2018 Boston marathon where 95.8% crossed the finish line (Boston marathon, 2018).

The preparation for running a mountain ultra is very rigorous. Rüst et al. (2012b), argue that ultra trail runners have to put in an extremely high amount of mileage and hours. Training demands unmeasurable hours to master the skills of mountain running, and years to build an extreme endurance. A long training run can take from 4 to 7 hours of running on technical terrain with as much elevation as possible. Training is also required for mastering the technical steep downhills, as one has to learn how to keep balance between holding oneself upright while descending at a dangerous pace on the treacherous terrain.

## Research question

Despite these difficulties, the popularity of ultra trail races has increased phenomenally in the last couple of decades. Prestigious races like Ultra Trail du Mont Blanc (UTMB) have a demand which far exceeds the acceptance rates, even though the application process is very rigorous. During the first year of UTMB, 2003, there were 722 participants, while 2537 participants were accepted in 2017 with hundreds more not having made it to the entry list. (UTMB, n.d.).

This paper will try to explore the reasons, through lived experiences of ultra trail mountain runners, why athletes willingly put themselves through such an arduous experience that only a few are capable of accomplishing.

## **Literature Review**

### ***Ultra trail mountain running as a challenge***

Running such an extreme distance is a challenge of the body and mind to test human limits (Crust, Nesti and Bond, 2010). This challenge is driven by various factors including personal goals (Krouse et al., 2011; Hanson et al., 2015).

Ferrer et al. (2015) also agree that “Ultra-marathoners may feel a sense of accomplishment or achievement by attempting to complete such a demanding task and the health benefits associated with the large volume of training with such an event drive their motivation to engage in ultra-marathons” (p.1167). Le Breton (2000) argues that athletes participating in extreme sports where they have to overcome suffering by challenging their limits, will gain recognition in today’s world which gives more significance to physical values than moral values. In doing so they will feel more fulfilled in their lives. The adventure of the run itself was also a challenging factor according to Doppelmayr and Molkenhain (2004).

### ***Ultra trail mountain running as an escape***

Jurek (2012) explains that, “The longer and farther I ran, the more I realised that what I was often chasing was a frame of mind. A place where worries that seemed monumental melted away, where beauty and timelessness of the universe, of the present moment came into sharp focus” (p.181). When the ultra runner is running, all day to day frustrations are forgotten, set aside. Csikszentmihalyi, Langer, Weinkauf Duranso (2017) believe that “The overwhelming sense of pleasure that accompanies these experiences helps explain why engaging in challenging activities is still so prized, even as people live in a society where laptops and smartphones make leaving the couch unnecessary” (p.6).

Scott, Kayla and Cava (2017), on the other hand argue that extreme experiences help tired white-collar workers escape from the reality of their lives by immersing themselves in pain during extreme activities. This makes them focus on themselves and forget the mundane. Through pain they will find the self.

### ***Ultra trail mountain running as a journey to self discovery***

Humans are curious creatures who are constantly seeking and exploring. They might be seeking new limits or how much they can endure. When running a long ultra, where they are not surrounded by the distractions and comforts of everyday life they might just discover what they are looking for. Doppelmayr and Molkenhain (2004) believe that ultra marathons are important because, “If a sport or running is highly important for a person, makes the life more purposeful or has philosophical foundations, this of course has an effect on the factor of life meaning” (p.322).

## ***Ultra trail mountain running for health***

Past research has indicated that ultra runners cite health reasons for their participation in the sport.

Veterans and women especially, consider the health benefits associated with ultra running as being very positive (Ferrer et al., 2015; Krouse et al., 2011). On the other hand, Knechtle and Nikolaidis (2018) give details of the adverse effects that running for such a length of time has on the kidneys, heart, blood values, hormones, immune system and the musculoskeletal system.

A very interesting fact emerged from a research by Hoffmann and Krouse (2018), where they asked participants whether they would stop practicing the sport knowing that it was detrimental for their health. 74.1% said that they would not stop.

Borghini et al. (2015) argue that telomere length which influences the ageing process is protected by ultra training implying that ageing is slowed down. Denham et al. (2013) also suggest that normal endurance training protects against ageing.

## **Methodology**

To understand why ultra runners feel compelled to stretch their limits, lived experiences were deemed the best option, as depth, not aggregates best suited the research question. Since an in-depth understanding of the phenomenon was being sought, a qualitative multiple case study research was found to be the most suitable research strategy. The verbal data was collected through in depth interviews which were transcribed and coded. The broad and exploratory interview question asked was “Can you describe your experiences when running a mountain ultra trail?”

According to Yin (2003), “case studies are the preferred strategy when “how” or “why” questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context” (p.2). A multiple case study approach was adopted as according to Herriott and Firestone (1983), when multiple cases are being studied, it strengthens and solidifies the overall study. Gustafsson (2012), also agrees that that the “benefits are that the evidence generated from a multiple case study is strong and reliable and the writer can clarify if the findings from the results are valuable or not” (p.11). To analyse the data, thematic analysis was used. According to Braun and Clarke (2006), “Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data” (p.7). Important overall themes were elicited from the transcripts which were then analysed. “A theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set” (p.840).

## Participants

Three active ultra runners were recruited via word of mouth. Two participants were male (ages 44 and 35) and one was female (age 30). Of the males, one resided in Italy and one in Malta. The female resided in Ukraine. Names were changed.

The athletes had participated in ultras from the 'Ultra Trail World Tour Series' ensuring that they had the same level of mastery of the sport. These ultras require that the participants accumulate points or have proof that they had previously participated in approved ultras.

THEMES	CODES
<b>The body achieves what the mind believes</b>	Coping strategies
	Meditation
	Psychological resilience
	Overcoming the challenge
<b>Time warp</b>	Immersion/'Flow'
	Mindless running
	The present
<b>Flat is boring</b>	Conquering the challenge of extreme duration
	Victorious
	Feeling special
<b>Sweet pain</b>	Physical and mental resilience
	Embracing pain
	Pain is finite
	Breaking limits
	Achievement
<b>The tribe</b>	Idealisation
	Camaraderie
	Trail running community
<b>Microcosm of life</b>	Undulating journey
	Parallel with life
	Self discovery
	Goal oriented/scope
	Motivation, discovery, curiosity, addiction

## **Findings and discussion**

### ***The body achieves what the mind believes***

A recurrent theme emphasised by the participants was the dissociation of the mind from the body.

All agreed that they could only complete the ultra and overcome pain by using the power of their mind as a separate entity from their body. According to John, “When your body shuts down, from there on it’s the mind that takes over”. Irina even personalised it. “It was like my mind was telling me enough, no more suffering”. Dario talked about “voices in my head” and cited “inner demons” which left him “shaken”.

According to John, the body and mind are acting against each other. “When you cannot even lift your foot from off the ground, there is a war at that stage, between mind and body.”

The participants appeared to be using a method of disassociation between embodiment and mind as a coping mechanism whereby the mind acted as the driving force when fatigue and despair took their toll. This body and mind disassociation in the cognitive function of the athletes during ultra, was also referred to by Holt et al. (2014) as a “mental/physical battle” (p.29). Carriker (2017), also sees the importance of both physical training and mental preparation to combat the elements of fatigue in a high intensity event.

### ***Sweet Pain***

The participants revealed that they were aware that during the race, they were going to feel discouraged, or in pain. Lane and Wilson (2011), argue that such feelings are always going to be present in endurance events. The outcome then depends on how the athlete deals with such feelings. Holt et al. (2014) identify such problems as “during race stressors” (p.7).

“In ultra races, there is a sort of point, when you feel pain and just run with this pain, walk with pain, so you become friendly. Kiss the pain” (Irina). This is in accordance with the findings of Crust and Bond (2007), who refer to mental resilience. Ultra runners are not any different from other human beings. They still feel the pain, but their threshold may be a bit different from that of other people only because they train a lot and they adapted their body to the demands of mountain ultra running. In a study referred to by Roebuck et al. (2018), cold pain threshold of ultra trail runners was studied. The authors of this study, Freund et al. (2013) argue that ultra trail runners have a higher cold pain threshold.

However, none of the athletes felt superior with regard to higher pain tolerance. They embraced pain as they knew it is only a transient phase. “I won’t feel like this for ever. Everything shall pass” (Dario). In fact, they even developed strategies to cope with it. These experiences are in contrast to the idea that people are actually seeking pain during extreme experiences as mentioned by Scott, Kayla and Cava (2017).

The coping strategies mentioned during this study were:

*Dividing the ultra in sections*, like from Refugio to Refugio (feed stations are located there). “I break up the distance and time into smaller amounts that I can manage that time” (John).

*Thinking about the goal (the finish)* and looking at the kms and elevations conquered instead of what still needs to be done.

*Being positive and happy* for small achievements like reaching a peak, arriving on time at the checkpoints, seeing the sunrise after a night running. “Forcing positivity also usually works for me and this can be as simple as smiling and thanking the spectators or volunteers” (Dario).

*Appreciating their capabilities* and feeling gratitude for the privilege of having them, “Just understanding that you can run the route that normal hikers take 5 days to walk it and you run it in 20 hours, just that...it makes it exciting and you feel satisfaction” (Irina).

*Self Motivation*: Irina mentioned that when she was suffering she told her “mind to shut up” and “just start doing simple counting. One two, one two...I just like talking to myself with some simple words like, let’s go, keep doing it and then just trying to increase the pace”. This was also reported by Dolan, Houston, and Martin (2011) when studying strategies used by triathletes.

Some of these coping strategies mentioned were in accordance with strategies mentioned by Holt et al. (2014).

### ***The Tribe***

Participants pointed out that the trail community acts like a family. “After the race, I like the atmosphere around, because the community of trail is completely different from the road one... You have a big family, everybody is very supportive” (Irina). “That is the primary reason I think, the community” (John). This concurs with Holt et al. (2014), who argue that, “A rather unique aspect of our findings was that participants also drew support from other racers” (p.11).

Although participants show a great sense of camaraderie and willingly assist each other during races, amongst the regulations of races like Lavaredo Ultra Trail (LUT), it is specified that failing to assist a participant in need will result in disqualification (LUT, n.d.).

### ***Time warp***

The race is an undulating journey where athletes feel either on top of the world or carrying the weight of the world. Sometimes a feeling of timelessness ensues and all the attention is focussed on running. Irina compared it to “meditation”. “Your head is kind of empty and free and you think about nothing and you just enjoy the moment”. According to Jurek (2012), “An empty mind is dominant mind” (p.87). During these moments, athletes perform to the best of their abilities. “You are not even noticing that you are running and km after km you are arriving to the finishing line” (John).

This is similar to what is referred to as being in the “zone” or as Csikszentmihalyi, latter, Weinkauff Duranso (2017) describe it, “as having a moment of “flow” where the “attention is so sharply focused on the task that all extraneous thoughts and anxieties disappear” (p.6). Past research has shown that during marathons, distractions will not help in obtaining a good result and athletes will be more likely to hit the wall (Stevinson & Bidle, 1998). But as Holt et al. (2014), rightly argue it is impossible not to be distracted during such a length of time.

### ***Flat is boring***

Training for a mountain ultra must include long challenging runs with steep elevations. To make it more bearable, the trail running axiom, “flat is boring” is often used.

The participants agreed that they drifted into the sport because they wanted a challenge. “I like to explore, first myself and to challenge myself to see how far I can go” (Irina). For John, “...the real challenge is to do mountains and difficult terrain... to see the limit for myself, the limit to what happens to my body, what happens to my mind”. This concurs with past research which also concludes that motivation arises from overcoming a challenge. (Doppelmayr and Molkenhain, 2004; Hanson et al., 2015). Jurek (2012), also believes that to find one’s limits, one has to challenge them. “What were my limits? And how could I discover them unless I tried to go beyond them?” (p.189).

Dario believed that our comfortable life has become boring and we are always looking for ways to escape the mundane. “There is no doubt in my mind that our lives have become extremely comfortable and therefore unexciting... ultra running is one of the preferred outlets for many people as it gives a sense of doing something adventurous and out there...I guess we sign up to feel alive”. This is in accordance with past research which argues that extreme sport experiences may act as a form of escapism (Edensor, 2000; Scott, Kayla & Cava, 2017).

### ***Microcosm of life***

The participants referred to ultra trail races as a “journey” rather than a race. Dario explained that

“An ultra always feels like a journey. And not just through the landscape but also through life as we are surrounded by both nature and humanity in all its race facets in a race”. When talking about problem solving during the race, John argued that, “If you compare that with life, it is the same, you know you have a problem, you know it will pass. Trail running is like a mirror of life”. According to Doppelpmayr and Molkenhain (2004), participants in an ultra have a decreased interest in the competitive aspect and give more value to life meaning. Irina also felt that it is parallel to life. “It’s really some small life but compressed in 20/30 hours”.

Holt et al. (2014) argue that the ultra is “a major life experience” which “may provide opportunities for growth” (p.30), but they do not compare it to a journey. The participants in this study were very persistent with their view that this “journey” left an impact, changed them, and gave them tools to handle life situations better. John admits that he learnt how to compartmentalise life to deal with problems. “You have your ups and downs. You have to break down your life into smaller pieces like work, family. So I think that trail running resembles life a lot”. Tedeschi and Calhoun (2004) also agree that people use life experiences to grow.

Dario questioned the reasoning behind “what is essentially a futile endeavour”. Jurek (2012), argues that there are times when running to the point of almost destroying oneself seems worthless, but then a simple a gesture like “an act of kindness” brings clarity and for that moment also brings understanding that actually “nothing is futile” and finishing the ultra is “the most meaningful thing in the world” (p.183). It is the same with life, we question our actions and sometimes our existence, but then, at times, through actions, or encounters, we find what we are looking for.

### **Limitations**

The participants did not refer to the same race when speaking about their experiences, so comparisons within the same event were not possible. They had roughly the same ability, placing within the first 20% of the finishers, so the perceptions of back of the pack runners were not analysed.

Being an ultra trail mountain runner myself, and having participated in various big ultras, I tried to be as objective as possible when formulating the research question and choosing the literature involved. However, despite my objectivity, I was also biased, and the choices of the theories consulted, the type of questions posed during the interviews and the interpretation of data inevitably reflect my bias.

## Conclusions

This research offered a valid insight into the lived experiences of ultra trail mountain runners. Although sometimes seen as heroes, their motivation stems from curiosity, the challenge of the endeavour and the need to test one's limits, rather than from seeking idolisation. They feel incredibly privileged and grateful for their physical capabilities which allow them to pursue their goals within a community built on the spirit of a pure sport.

Although they endure extreme hours of training per week, they feel that training is part of a journey where they are their own muse, constantly pushing their physical and mental limits to make it to the start of the race. The race itself is brutal, but it is through facing and overcoming pain, doubt and obstacles that they find their motivation and potential.

A salient finding was the dissociation of the body from the mind. Participants indicated that to be successful, they must use mental strength to force their body towards the finish line.

By using parallels, trail runners indicate that they are seeking meaning to the journey of life.

They also develop techniques to get them through the experience and feel that lessons learnt during training and the race itself will be of value in all aspects of life.

This research does not show that the participants were motivated by health reasons as revealed by past research (Hanson et al., 2015; Ferrer et al., 2015), but rather they were responding to an internal calling to test themselves and grow.

## Suggestions for future research

The average age of the participants in this study is 36.3 years. Research shows that the average age of both genders in long ultras is between 45- 49 years (Romer et al., 2014). However, we find that there is a growing interest from young participants in trail races. This can be seen from the participation of youngsters in trail races specifically organised for them. During the UTMB race summit, we find the "Mini UTMB", a series of races organised for children from 3 to 13 years. (UTMB, n.d.). Research can identify the reasons why young people are seeking trail running from such a young age.

## References

Acevedo, E. O., Dziewaltowski, D. A., Gill, D.L., and Noble, J.M. (1992). Cognitive Orientations of Ultramarathoners. *The sport psychologist*, 6(3), 242-252.

- Allen-Collinson, J., & Owton, H. (2015). Intense Embodiment: Senses of Heat in Women's Running and Boxing. *Body & Society*, 21 (2), 245-268.
- Arnould, E., & Price, L. (1993). River Magic: Extraordinary Experience and the Extended Service Encounter. *Journal of Consumer Research*, 20 (1), 24-45.
- Askwith, R. (2004). *Feet in the clouds*. London: Aurum Press Ltd.
- Belk, R.W., & Costa, J.A. (1998). The Mountain Man Myth: A Contemporary Consuming Fantasy. *Journal of consumer research*, 25(3), 218-240.
- Boston marathon (n.d.). Available at [www.baa.org/races/boston-marathon/results](http://www.baa.org/races/boston-marathon/results) [Accessed 8th August 2018]
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Canniford, R., & Shankar, A. (2013). Purifying practices: how consumers assemble romantic experiences of nature. *Journal of Consumer Research*, 39(5), 1051-1069.
- Carriker, C. R. (2017). Components of Fatigue: Mind and Body. *Journal of Strength and Conditioning Research*, 31(11), 3170–3176.
- Ceylan, M. (2017). The Effect of Duration of Extreme Sports Involvement on the Perception of These Sports to be Extreme. *International Journal of Science and Research*, 6(12), 554-556.
- Crust, L. (2007). Mental toughness in sport: A review. *International Journal of Sport and Exercise Psychology*, 5, 270-290.
- Crust, L., Nesti, M., and Bond, K. (2010). Mental toughness and coping in an ultra endurance event. *Athletic Insight Journal* 2, (1) 35-54.
- Culver, D. M., Gilbert, W. D. and Trudel, P. (2003). A Decade of Qualitative Research in Sport Psychology Journals: 1990-1999. *The Sport Psychologist*, 17, 1-15.
- Csikszentmihalyi, M., & Hunter, J. (2003). Happiness in everyday life: The uses of experience sampling. *Journal of Happiness Studies* 4, 185-199.
- Csikszentmihalyi, M. (1990). *The Psychology of Optimal Experience*. New York: Harper and Row.
- Csikszentmihalyi, M., Latter, P., and Weinkauff Duranso, C. (2017). *Running flow*. Available at [http:// https://lccn.loc.gov/2016049246](http://https://lccn.loc.gov/2016049246) [Accessed 2 June 2018].
- Doppelmayr, M., & Molkenthin, A. (2004). Motivation of participants in adventure ultramarathons compared to other foot races. *Biology of sport*, 21(4), 319-324.
- Edensor, T. (2000). Walking in the British Countryside: Reflexivity, Embodied Practices and Ways to Escape. *Body & Society*, 6(3-4), 81-106.
- Ferrer, D., Baumann, C.W., Brandenberger, K. J., and Ellis, R. (2015). Physical Motivation Influences Race Performance Over a 24-hour Ultra-Marathon. *International Journal of Sport Studies*. 5(10), 1162-1169.
- Freund, W., Weber, F., Billich, C., Birklein, F., Breimhorst, M., and Schuetz, U. H. (2013). Ultra-marathon runners are different: Investigations into pain tolerance and personality traits of participants of the Trans Europe Foot Race 2009. *The psychology of ultra-marathon runners: A systematic review*, 13(7), 524–53.
- Gustafsson, J. (2017). *Single case studies vs. multiple case studies: A comparative study*. Unpublished Dissertation. Sweden: Halmstad University.
- Hanson, N. J., Madaras, L., Dickie, J., and Buckworth, J. (2015). Motivational differences between half, full and ultramarathoners. *Journal of Sport Behavior*, 38 (2), 180-191.
- Herriott, R.E., & Firestone, W.A. (1983). Multisite qualitative policy research: Optimizing Description and Generalization. *Educational Researcher*, 12(2), 14-19.

- Holt, N.L., Lee, H., Kim, Y., and Klein, K. (2014). Exploring Experiences of Running an Ultramarathon. *The Sport Psychologist*, 28(1), 22-35.
- Houston, M., Dolan, S., and Martin, S. (2011). The impact of physical, nutritional, and mental preparation on triathlon performance. *The journal of sports medicine and physical fitness*, 51(4), 583-94.
- Hirschman, E.C., & Holbrook, M.B., (Summer 1982). Hedonic Consumption: Emerging Concepts, Methods and Propositions. *Journal of Marketing*, 46(3), 92-101.
- International Trail running association. (n.d.). Available at W [Accessed 8th August 2018]
- Jackson, S. A., & Roberts, G. C. (1992). The rewarding effect of flow experience on performance in a marathon race. *Sport psychologist*, 6(2), 156-171.
- Jones, G., Hanton, S., and Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology*, 14, 205-218.
- Jurek, S., & Friedman, S. (2012). *Eat and Run: My Unlikely Journey to Ultramarathon Greatness*. New York: Houghton Mifflin Harcourt.
- Keinan, A., & Kivetz, R. (2011). Productivity Orientation and the Consumption of Collectable Experiences. *Journal of consumer research*, 37(6), 935-935.
- Knechtle, B., & Nikolaidis, P. T. (2018). Physiology and Pathophysiology in Ultra-Marathon Running. *Frontiers in physiology*, 9, 634.
- Knechtle, B., Knechtle, P., Andonie, J. L., and Kohler, G. (2009). Body Composition, Energy, and Fluid Turnover in a Five-Day Multistage Ultratriathlon: A Case Study. *Research in sports medicine*, 17(2), 95-111.
- Krouse, R., Ransdell, L., Lucas, S., and Pritchard, M. (2011). Motivation, Goal Orientation, Coaching, and Training Habits of Women Ultrarunners. *Journal of Strength and Conditioning Research*, 25(10), 2835-2842.
- Lavaredo ultra trail. (n.d.). Available at [www.ultratrail.it/en/](http://www.ultratrail.it/en/) [Accessed 8th August 2018]
- Lane, A. M., & Wilson, M. (2011). Emotions and trait emotional intelligence among ultra-endurance runners. *Journal of Science and Medicine in Sport*, 14(4), 358-362.
- Le Breton, D. (2000). Playing Symbolically with Death in Extreme Sports. *Body and Society*, 6(1), 1-11.
- Lucas, S. J. E., Anson, J. G., Palmer, C. D., Hellemans, I. J., and Cotter, J. D. (2009). The impact of 100 hours of exercise and sleep deprivation on cognitive function and physical capacities. *Journal of Sports Sciences*. 27(7), 719–728.
- Madeira Island Ultra trail (n.d.). Available at <http://miutmadeira.com/pt/> [Accessed 8th August 2018].
- Nicholls, A. R., & Polman, R. C. (2007). Coping in sport: A systematic review. *Journal of sport sciences*, 25, 11-31.
- Plant, S., Cohen, S., and Taylor, L. (1979). Escape Attempts: The Theory and Practice of Resistance to Everyday Life. *Journal of consumer research*, 20(3), 416-416.
- Powell, B. (2011). *Relentless forward progress*. New York: Breakaway Books.
- Roebuck, G. S., Fitzgerald, P. B., Urquhart, D. M., Ng, S-K., Cicuttini, F., and Fitzgibbon, B. M. (2018). The psychology of ultra-marathon runners: A systematic review. *Psychology of Sport and Exercise*, 37, 43-58.
- Romer, T., Rust, C. A., Zingg, M. A., and Rosemann, T. (2014). Age and ultra marathon performances - 50 -1000km distances from 1969 to 2012. *Springerplus*, 3, 693.

- Schuller, J., & Brunner, S. (2009). The rewarding effect of flow experience on performance in a marathon race. *Psychology of Sport and Exercise*, 10(1), 168-179.
- Scott, R., Cova, B., and Cayla, J. (2017). Selling Pain to the Saturated Self. *Journal of consumer research*, 44(1), 22–43.
- Temesi, J., Arnal, P. J., Rupp, T., Fésson, L., Cartier, R., Gergelé, I., Verges, S., Martin, V., and Millet, G. Y. (2014). Are females more resistant to neuromuscular fatigue? *Medicine and science in sports and exercise*. 47(7), 1372-82.
- Ultra trail du mont blanc (n.d.). Available at [utmbmontblanc.com](http://utmbmontblanc.com) [Accessed 8th August 2018].
- Ultra trail World tour series (n.d.). Available at [www.ultratrail-worldtour.com](http://www.ultratrail-worldtour.com) [Accessed 8th August 2018].
- Western states endurance race (n.d.). Available at [www.wser.org](http://www.wser.org) [Accessed 8th August 2018].
- Wolcott, H. (1994). *Transforming qualitative data*. London: Sage.
- Yin, R. (2003). *Case study research: design and methods*. 2nd ed. London: Sage publications.

## Bio-note

**Nadia Portelli** is Senior Lecturer at the University of Malta, Junior College. She has been teaching physics for the past 26 years. Nadia has participated in various Erasmus+ projects including “InterAct for Tolerance” and “Eating for Life” which saw the participation of various European countries. Nadia started running 27 years ago and participated in various road races both locally and abroad, including the London Marathon. Nadia’s interest in ultra-trail running started four years ago when she participated in Gozo Ultra and placed first female. She participated in various ultra-trail mountain races, including the prestigious CCC (Courmayeur, Champex, Chamonix, 101km, 6100m elevation gain), Ultra Pirineu (110km, 6400m elevation gain), Madeira Ultra Trail (115km, 7100m elevation gain) and Lavaredo Ultra Trail (120km, 5800m elevation gain).

