Expert Views

Pushing Human Endurance Limits:
Understanding triathlon and ultra endurance running in life underwriting

Extreme Sports
An Underwriting series

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Contents

Executive Summary

Triathlon, Ironman, and ultra running – few will disagree that those are extremely tough sports. The unique and intense nature of these races in terms of the physical demands on the body and sometimes the harsh environmental conditions of the events push the limits of human endurance. Despite these challenging and sometimes even dangerous conditions, or maybe because of the excitement of overcoming those challenges, the number and variety of race types keep expanding, attracting millions of participants from all kinds of backgrounds, motivational reasons and athletic levels. While we know that physical activity reduces mortality and promotes health, these extreme races can pose both short and long-term health risks.

This article focuses on health and life risks associated with endurance races, particularly triathlon and ultra endurance running (UER). Through holistic risk analysis and mock underwriting cases, it provides underwriters and insurance professionals with a deeper understanding of what needs to be considered during the underwriting process of the applicants who participate in these races. While this article does not offer in-depth medical or scientific advice on underwriting-specific cases, we aim to provide readers with essential knowledge and points to consider when underwriting applicants who engage in these activities.

Key Messages

- Endurance races, represented by triathlons and ultra endurance running (UER), come with an unlimited variety of high-intensity activities, attracting a wide variety of participants of all ages, athletic abilities, and health statuses. Although those who participate in these events are usually considered to be healthier than the general population, the lack of strict qualification guidelines and low barrier-to-entry are creating unique challenges for underwriters in properly assessing the applicants' risks.
- Major health risks associated with this sport, although they vary by the type of race, include cardiovascular, respiratory, renal, and accident risks. Although statistically very low, the majority of deaths occurred during the swim stage in triathlon races, primarily due to drowning or cardiac arrest.
- Underwriters must be aware that triathletes and ultra runners, especially those of older ages (50+), could be exposed to elevated mortality and morbidity risks.
- For elite athlete applicants or those competing in an ultra-challenging high-profile race, a thorough review of their medical records is recommended to properly assess their cases.
- For more in-depth and updated information, underwriters are recommended to consult medical advisors or guidelines published by global and local medical associations.

Author's introduction

"Why triathlon?" - this is a question I have been asked so many times since I started racing 26 years ago. Back then, I was seeking a new and exciting sport to stay healthy after quitting smoking. When I first heard about triathlon, I thought it sounded simple enough: All you need to do is swim, bike, and run, right? Then I watched a TV documentary about a famous triathlon race in California called "Escape from Alcatraz." I was instantly captivated and decided to try it out. This is how my triathlon journey began.

My first race, "Northern Triathlon Weekend" in Ontario, Canada, was no Alcatraz but a mini-triathlon. I thought it would be easy, especially after training all summer. I was totally wrong. After finishing 400m swimming and 10km biking, my 2.5 km run felt like one of the biggest challenges I had ever faced in my life. But I felt so great after the finish. This life-changing experience got me hooked on this sport. I have never stopped ever since.

Since then, I have raced in all kinds of distances and terrain - from mini-tri to half Ironman as well as from road to cross country. I learned that the world of triathlon and endurance running is much wider than I initially thought. Collectively called "extreme races" or "endurance races," these extremely challenging events are limitless.

Then came the pandemic. Everything was suspended. During this period, I decided to become a certified Canadian Provincial Official officer for triathlon races and an NCCP (National Coaching Certification Program) triathlon coach trainer. Both of these programs allowed me to get a better understanding of rules, risks, and proper training.

Now as a coach and officer, I have encountered triathletes of all ages, experience levels, and reasons to participate in the race. While I am impressed by the growing popularity of this sport, I started to realize that there are growing concerns about rising accidents and fatality rates. What are the possible factors and what can we do to prevent them? At the same time, as a life underwriter, how can I assess these risks so that we can provide proper protection to these athletes? This encouraged me to write this article.

I am thrilled to share my passion and knowledge of this sport with my fellow industry colleagues. I hope this report will give you valuable information as well as professional underwriting advice for this fascinating sport.

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Introduction to Triathlon and Ultra-Endurance Running

Endurance race, also called "extreme race," refers to a race in which a competitor's stamina is tested to the limit, according to Collins Dictionary. This definition allows many variations of sports under this category, both in terms of combination (run, bike, swim, kayaking, etc.), location (road, cross-country, jungle, desert, snow hills, etc.), and distances. Table 1 shows the major types of endurance sports.

Types and distance of endurance sports (in mile)

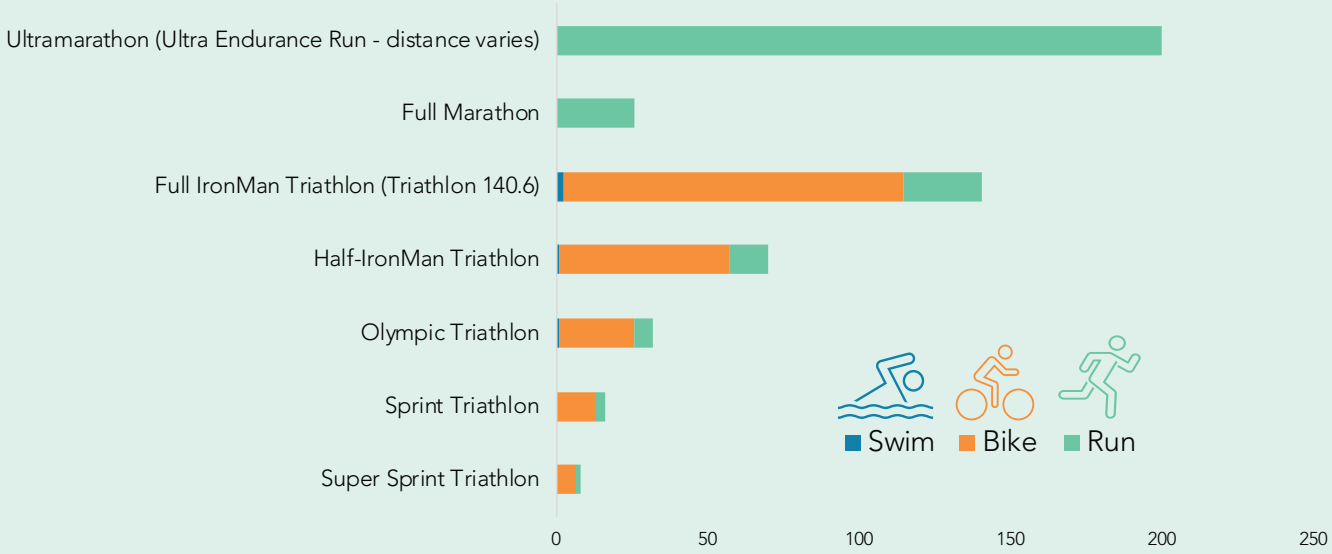


Table 1: Type of endurance sports

Types of Endurance Sports	Swim Distance	Bike Distance	Run Distance	Other Distance
Super Sprint Triathlon	0.25 mile (400 m)	6.2 miles (10 km)	1.6 miles (2.5 km)	
Sprint Triathlon	0.5 mile (750 m)	12.5 miles (20 km)	3.1 miles (5 km)	
Olympic Triathlon	0.93 miles (1.5 km)	25 miles (40 km)	6.2 miles (10 km)	
Half-IronMan Triathlon	1.2 miles (1.9 km)	56 miles (90 km)	13. miles (21.1km)	
Full IronMan Triathlon (Triathlon 140.6)	2.5 miles (3.8 km)	112miles (180 km)	26. miles (42.2km)	
Full Marathon	None	None	42.195 km	
Quadrathlon	2.5 miles (4 km)	62 miles (100 km)	13 miles (21 km)	Kayaking 12.5 miles (20 km)
Ultramarathon (Ultra Endurance Run)	None	None	31 miles (50 km) to 200 miles (320 km)	
Marathon Swimming	> 6.2 miles (10 km)	None	None	

Triathlon, one of the most popular sports in this category, is a continuous endurance multi-sport event consisting of three popular sports: swimming, cycling, and running. Another popular endurance sport is ultra running. Also called ultra endurance running (UER) or ultramarathon, this race consists of running above the full marathon distances (42.195 km), exceeding six hours, and/or running set distances on multiple consecutive days. Various distances are offered, from 50 km (31 miles) to over 320 km (200 miles) (see Table 1).

Triathlon and UER are gaining global popularity, with an increased number of races being offered worldwide.[1] Life insurance underwriters should expect to see more applicants participating in such races in the future. What particular risks should you consider when underwriting these applicants? There are countless variations within the endurance race category. In this report, we will focus on triathlon or ultra endurance races (UER).

To make this analysis more practical and interactive, let's imagine that you are a life insurance underwriter. You received the following two applicants and need to underwrite them. How should we assess these applicants' risks?

Case 1:

Olivia Jones, an American female, age 33, non-smoker, 5'2, 165 lbs (155cm, 74kg), lost 75 lbs (34kg) during the past year after having gastric bypass surgery 18 months ago. She disclosed in her application that she has changed her eating habits since her surgery, started exercising on a regular basis, and even completed a sprint triathlon. She recently signed up for a long-distance triathlon. She is applying for life coverage of $750,000. How would you underwrite her?

Case 2:

Bruno Michel, a French male, age 51, non-smoker, 5'10, 185 lbs (178cm, 84kg), no current health concerns shared on the application. He travels worldwide, wears a smartwatch, and is very athletic. During the past 25 years, he competed in multiple races including marathons, Ironman, and cross-country skiing. During a yearly executive checkup, he was diagnosed with "athlete's heart." Despite that, he is planning to participate in the upcoming race: Marathon des Sables, one of the most challenging endurance races in the world. He is applying for a permanent life policy with EUR 1,000,000 coverage. Should you be concerned as an underwriter?

We will return to these cases in the Implications and Recommendations for Underwriting section at the end of this report.

Overview of Triathlon and Ultra Running

Triathlon

Triathlon, one of the most popular sports in the extreme race category, is a continuous endurance multi-sport event consisting of three popular sports: swimming, cycling, and running in sequence. In its most popular traditional form, athletes swim in a lake, river, ocean, or pool, then bike on the road, and finish with a road run. Ironman Triathlon, which is a part of long-distance triathlon races organized by the World Triathlon Corporation, is considered to be one of the toughest one-day sporting events, totaling 140.6 miles (226 km) of swim, bike, and marathon.

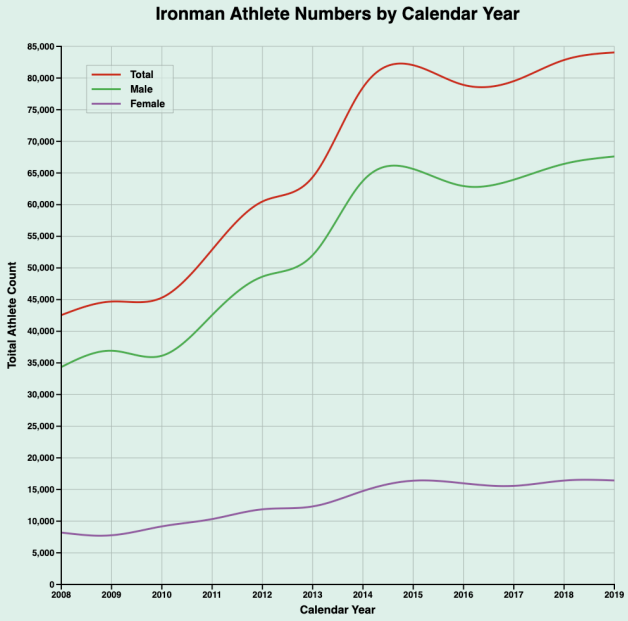
History of Triathlon

The first triathlon race traces back in the early 20th century in France. Called "Les Trois Sports" (the three sports), it consisted of a run, a bicycle, and a canoe segment, which was eventually replaced by a swim, with all stages being performed consecutively and without a break in-between.

In 1974, the first modern triathlon took place in San Diego, California. It consisted of a 4.8 km (3 miles) run, followed by an 8 km (5 miles) bike, then a swim across an island. There were 46 participants. Four years later, two of this event's participants started an even harder race - the famous Hawaii Ironman. These athletes must complete swimming, biking, and running non-stop for 140.6 miles (226 km) – 2.5 miles (3.8 km) of swimming, 112 miles (180 km) of biking, and finishing with a full marathon of 26.2 miles (42.2 km). Twelve of 15 participants finished that first race.

The Ironman race base has grown rapidly and has become a very popular endurance activity, with over 80,000 participants worldwide (Chart 1). The largest age group of triathletes has shifted from ages 35-39 to ages 45-49 during the course. This may be attributed to many factors, including the high costs of the events, the emergence of other types of sports to attract younger people, etc. To attract younger participants, triathlon organizers are aiming to make the experience more interesting and affordable.[2]

Chart 1: Ironman athlete numbers by calendar year (Source: CoachCox | Ironman Demographics: Overall Competitors[3])



Triathlon's Expanding Variation and Athletes Base

Triathlon became an official Olympic sport in 2000. The standard distance, also known as the "Olympic distance" for this race was set to be a 1.5 km (0.9 miles) swim, 40 km (25 miles) bike, and 10 km (6 mile) run. As the popularity of the race grew, so did its variation. To attract more participants, shorter distances races such as mini-triathlon and Super Sprint were introduced. Table 2 shows different types of triathlons that are popular today. Many first-timers eventually move on to longer distances, reaching the standard distance or even the Ironman level. This expanded popularity and often too rapid and inconsistent increase in difficulty levels could cause elevated health and safety risks for participants, leading to serious injuries and even deaths, including cardiac arrests, which happen in nearly two out of every 100,000 competitors.[4]

Table 2: Different distances of triathlon races

	Swim	Bike	Run	Average estimated time to complete
Super sprint/ tri triathlon	400 m	10 km	2.5 km	Elite:<30 mn Age group: about 55 mn
Sprint	750 m	20 km	5 km	Elite:< 1 hour Age group : around 80 mn
Standard /Olympic	1500 m	40 km	10 km	Elite:<2 hours Age group: around 2.5 hours
Half-Ironman or 70.3	1900 m	90km	21.1 km	Elite: about 4 hours 20 mn Age group : around 6 hours, with cut off being 8.5 hours
Ironman / 140.6	3800 m	180 km	42.2 km	Elite: about 8.5 hours Age group: about 11.5 hours with cut off being 17 hours

Professional/Elite Triathletes and Their Training

Professional athletes, also known as elite athletes, are highly competitive, experienced and registered triathletes who meet the elite license qualifications outlined in the Elite Triathlon License Qualification Criteria by the national governing body of World Triathlon such as USA Triathlon.[5] As of July 2023, there are more than 1,150 registered elite athletes in Men's World Triathlon Ranking[6] and more than 800 in Women's.[7]

Elite triathletes face a highly demanding life, both physically and mentally. They must train for all four disciplines: swimming, biking, running, and transitions. The weekly amount of training could exceed over 30 hours. They are often under high pressure as they must maintain good race records to keep their official member status, such as within 8% of the winner's time at an event sanctioned by USAT, World Triathlon, and other official organizations. This puts athletes under high stress, which could expose them to a higher mental health risk.

Ultra Endurance Running (UER)

Another popular type of endurance/extreme race is the ultra endurance running (UER), also called ultra running or ultramarathon. It is defined as any race longer than the standard marathon (42.195km or 26.2 miles). Well-known examples of this race type include Marathon des Sables in Morocco, Comrades Marathon in South Africa, Ultra-Trail du Mont-Blanc in the European Alps, and Western States 100 in California. With no upper limit in distance, UER races mainly fall under three types: 1) trail running where conquering rough terrain and obstacles are the major challenges, 2) races with a specific distance or route, and 3) those that last for a predetermined period of time, such as 24 hours or 48 hours.

International Association of Ultrarunners hosts world championships and publishes rankings for popular races such as 100 km, 100 miles, 12 hours and 24 hours.[8] But there are many races outside these categories. Although distances greatly vary, the most common distances are 50 km (31.07 mi), 81 km (50 miles), 100 km (62.14 mi) and 161 km (100 miles).[9] The average distance is becoming shorter. In 1996, the majority of races (56%) were longer than 50 miles, but that has shrunk to just 28% in 2018 (see Chart 2).

History of Ultra Endurance Running (UER)

The first UER race took place in Washington, US in 1911 when 14 competitors ran up Mount Baker's 10,781-foot (3286 km) elevation while thousands of spectators witnessed and cheered them.[10] Participation growth in UER was initially slow, until 2008 when it suddenly skyrocketed, increasing to more than 611,000 runners by 2018 (see Chart 3).

Chart 2: Distance distribution of ultramarathon participants (Source: International Association of Ultrarunners (AIU) and RunRepeat)[11]

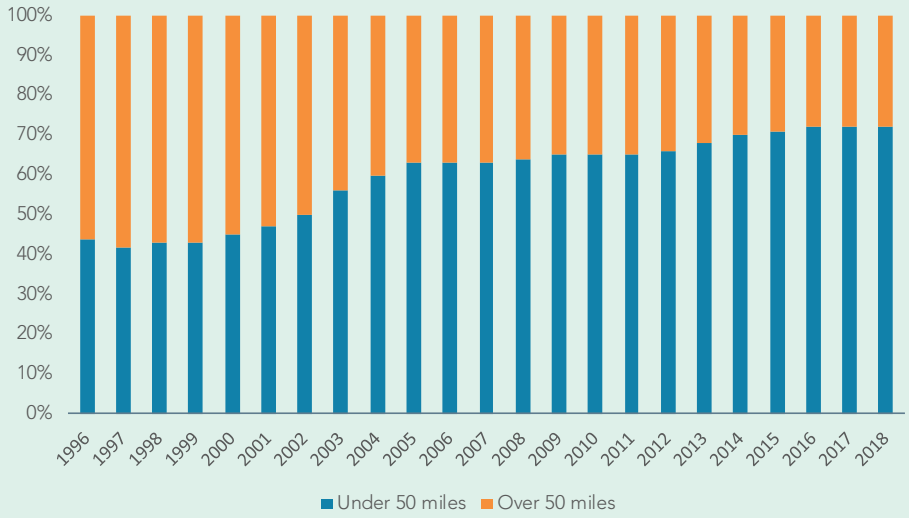


Chart 3: Number of ultra running participants (Source: International Association of Ultrarunners (AIU) and RunRepeat12)

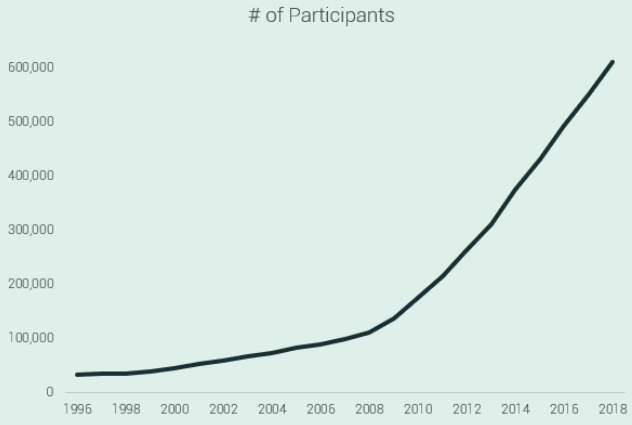
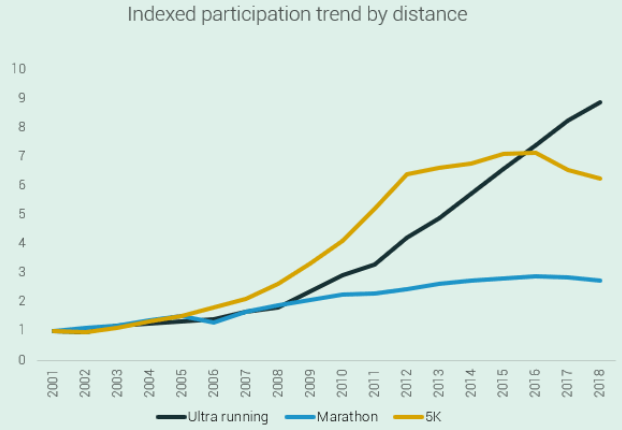


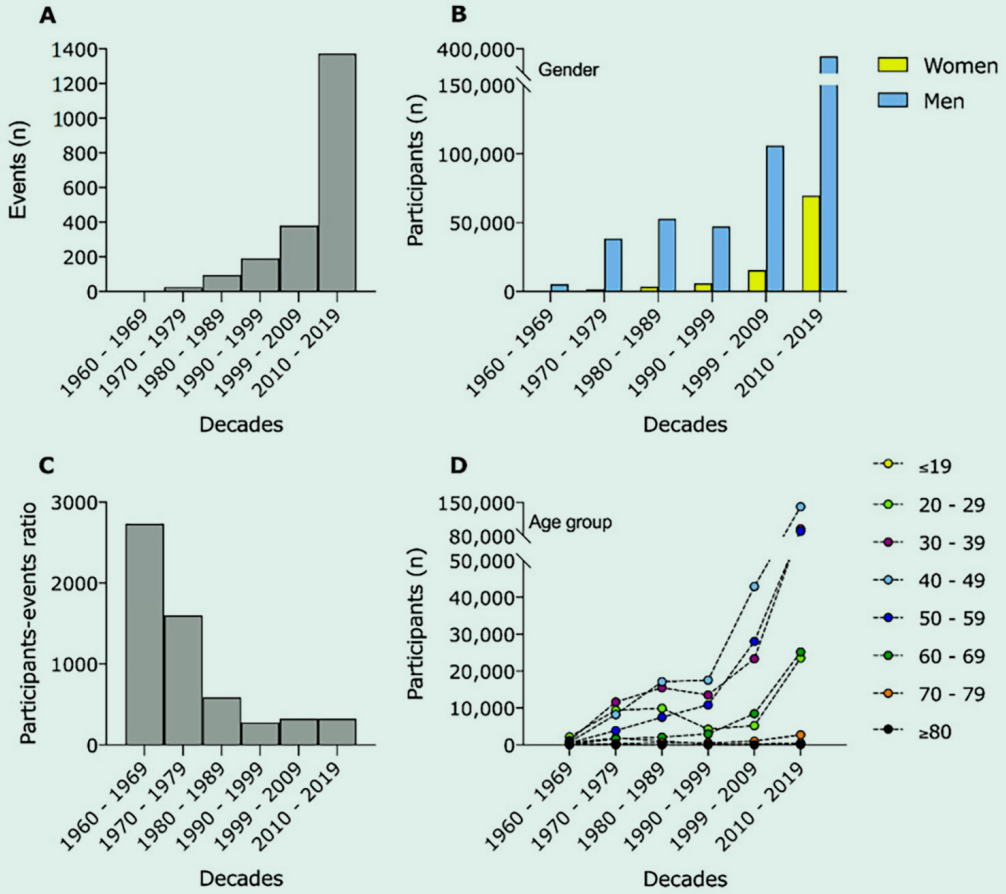
Chart 4: Indexed participation trend by distance (Source: International Association of Ultrarunners (AIU) and RunRepeat)



The growth rate of ultra endurance runners has surpassed that of 5Ks and regular marathons (see Chart 4), which shows a very strong and steady growth trend of ultra runners.

Who participates in ultra running events? The average age of the ultra running participants is around 43 years. Growth in the age group of 40 - 49 is the highest, but the steep growth of older age groups (50 through 69) is also noteworthy (see Chart 5).[13]

Chart 5: Historical growth of participants of 2067 100km ultramarathons worldwide (Source: Int J Environ Res Public Health)



Number of events (total n = 2067) (A), participants by sex (total n = 715,539) (B), participants-events ratio (C) and participants by Age group (D) of 100-km ultra-marathons from 1960 to 2019.

Male runners account for nearly 80%, but female participation has been steadily growing in the past decades. As for participants' country of origin, France, USA, South Africa, Japan, and Italy are the top five, followed by China, UK, Germany, and Spain.

Elite Ultra Endurance Runners and Their Training

Unlike triathlon, there is no official qualification for becoming ultra endurance runners. Many competitive ultra runners have day jobs other than running to support themselves. Still, some of them earn their living by obtaining sponsorship from corporations and by winning race prizes.[14] Unlike other running sports, training and preparation for many elite ultra endurance runners are often self-guided. They must also prepare themselves for extreme mental and physical strain facing the harsh environment, unpredictable conditions, and extremely long race hours.

Insurance Protection Provided for Triathletes and Ultra Endurance Runners

As discussed above, triathlon and UER races involve significant health and accident risks. What types of insurance coverage do the athletes have?

When a participant signs up for a triathlon, an automatic fee for insurance coverage is added to the entry fee if they are not a regular member of the association.[15] This fee covers a certain degree of liability and accident coverage. At the time of registration at the event, all participants will also be asked to sign waivers against any injury or death caused by their own lack of judgment. A typical waiver includes a sentence about participants' health and life risks as follows:

I understand that participation involves risks and dangers which include, without limitation, the potential for serious bodily injury, sickness and disease, permanent disability, paralysis and loss of life (source: USA Triathlon)

This waver exposes athletes to a higher degree of potential accidental death and injury protection coverage risks. This may motivate them to obtain life insurance policies or increase their benefits. Although these athletes generally tend to be considered healthier than the general population,[16] it would be prudent for underwriters to be informed of potential risks those athletes may face, as discussed in the next section.

Risks Associated with Triathlon and Ultra Endurance Running

It is well established that being active generally reduces the risk of all-cause mortality.[17] So why should we be concerned with people engaging in triathlon and ultra running? As these races are becoming increasingly popular, studies show increasing fatality and more evidence of the long-term adverse effects of prolonged and strenuous exercises on endurance athletes.[18]

Let's look at the statistics. For triathlon, there have been more than 200 deaths recorded between 1986 and 2023.[19] The majority (72%,147 cases) of deaths occurred during the swim stage, primarily due to drowning or cardiac arrest (Chart 6). Age group 40-49 has the highest number of fatalities. It is also important that fatalities in the older age group (50 and above) are high despite the smaller participation pool when compared to the younger group, indicating that their risk is as high as, or could be even higher than, age 49 and below population.

Chart 6: Triathlon race causes of death by stage 1986-2023(Source: Wikipedia)

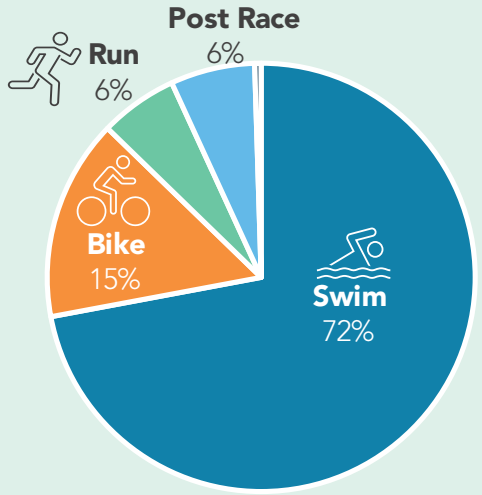
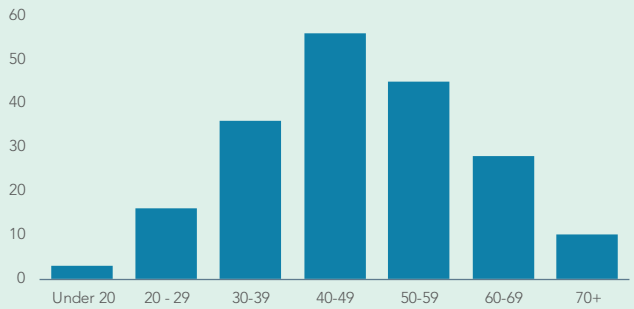


Chart 7: Triathlon fatalities by age group 1986-2023 (Source: Wikipedia)



This section discusses major health risks and concerns for endurance race athletes, either triathletes or ultra runners.

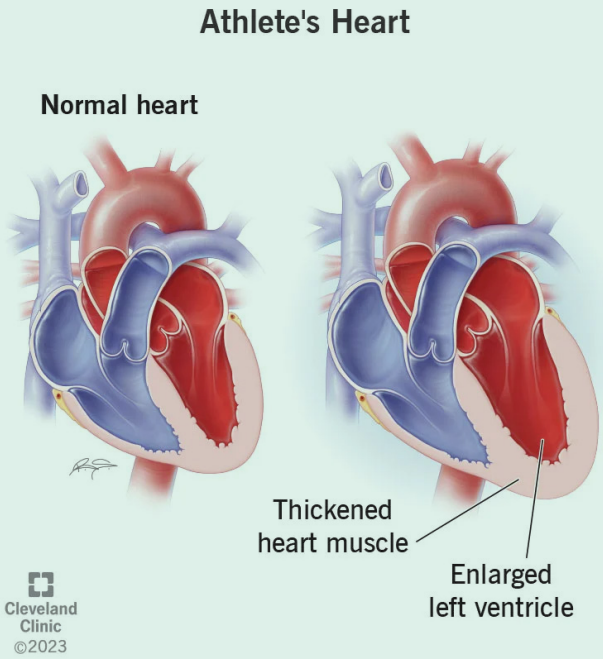
Cardiovascular Risk

One of the biggest health impacts observed among triathlon athletes and ultra runners is on their cardiovascular systems. While regular aerobic exercises bring various health benefits, studies show that continuous endurance exercise may negatively impact the heart, such as morphological and histological cardiac remodeling, arrhythmias, sinus node dysfunction, and high coronary artery calcium scores.

The longer the duration of the events, the more severe the impact on the athletes. Examples include platelet and coagulation activation and elevation of cardiac markers indicators. Some can go back to normal within a week, while other markers may remain elevated, especially after Ironman competitions.[20] This increase is usually associated with the abnormal left ventricular function seen on an echocardiogram. Even when the recovery seems to have been completed, long-term training and races may lead to myocardial fibrosis.

Another health condition that could raise the athletes' cardiovascular risk is athletic heart syndrome (AHS), or the so-called "athlete's heart." The endurance race athlete's heart typically shows not only a remodeling of the left ventricle (LV), but also a large increase in the size of the right ventricle (RV) and atria (see Image 1).

Image 1: Athlete's heart (Source: Cleveland Clinic[21])



Atrial arrhythmia, especially atrial fibrillation (AF), may occur in males who are highly trained endurance event participants. This would appear after several years of training, with a risk of AF multiplied three to five times compared to inactive persons.

The rare but more severe case of cardiovascular system risk is sudden death. Its occurrence rate is 1.5 (0.9-2.5) for every 100,000 participants, mostly during the swim-related part of triathlon events.[22] Causes for sudden death during triathlon swims include insufficient open-water swim training, adverse environmental conditions such as cold-water temperatures, sudden current changes, large waves, anxiety, panics, etc. The primary cause for sudden death is cardiac arrest, but it also can be caused by other conditions such as swimming-induced pulmonary edema, a displacement of fluid from the blood vessels into the breathing space of the lungs.[23] For

more in-depth and updated information, consult guidelines published by cardiology associations such as the American Heart Association[24] and the European Society of Cardiology.[25]

Respiratory System Risk

From a respiratory system aspect, endurance athletes can be at a higher risk of exercise-induced bronchoconstriction (EIB), also known as exercise-induced asthma, than the regular population. This is due to the high volume of pulmonary ventilation sustained during training. EIB triggers related to triathlon include airborne irritants related to sports that involve chlorine when swimming, pollution while running or cycling, or cold and dry air.[26] Other issues include pulmonary edema, which is a buildup of fluid in the lungs following long events.[27] These may be a normal response to strenuous endurance exercise, the short or long-term consequences of repeated occurrences are currently unknown.

Renal System Risk

Triathlon and ultra running athletes also could have issues with their renal system, which consists of the kidney, ureters, and urethra. During exercise, renal blood flow is reduced as most of the blood is pumped to the muscles, decreasing renal function. Thus, it is important for athletes to be informed about the need to have proper hydration during races and training, especially during events in extreme environments with hot and humid conditions or at high altitudes. These renal issues, however, are generally minor and recover to the baseline values shortly after the races. In addition, male triathletes may face a higher risk of urologic complications such as infertility, elevated prostate-specific antigen (PSA) levels, erectile dysfunction (ED), lower urinary tract symptoms, and increased predisposition to prostate cancer.[28]

Gastrointestinal Risk

Endurance exercise is associated with long-term health benefits such as the reversal of fatty liver and lower rates of colon cancer. But it also could elevate athletes' gastrointestinal risk. Acute gastrointestinal issues are common during ultrarunning training and racing as well for long-distance triathletes, with 50-80% of runners experiencing nausea, vomiting, or diarrhea. Proper hydration is key to help with these secondary nuisances that are usually of short duration.

Immunological System

The extreme physical and mental stress that endurance race athletes face during a race and training can significantly impact their immune function. Ultra running and long-distance triathletes may be more prone to acute infections due to reduced immunoglobulins for a short period following a race. While most athletes recover within weeks after the race, periods of overreaching may result in longer-lasting immune alterations and dysfunctions. This is why even well-trained athletes will need specific training plans with rest periods.

Runner's Anemia and Iron Deficiency

Long-distance endurance runners face a risk of developing iron deficiency, which could lead to runner's anemia. This may occur when the athlete's red blood cell count becomes abnormally low, causing several symptoms, including fatigue, malaise, lethargy, pallor, increased heart rate, depressed mood and energy, difficulty concentrating, breathlessness during exercise, and reduced performance. The mortality rate due to anemia is low, but if it is combined with other risks such as dehydration, accident, cardiovascular issues, and overtraining syndrome, it could cause serious consequences.

Injuries and Accidental Deaths

Since triathlons and ultra running may be extremely long and strenuous races, often involving harsh and unpredictable environments, accidents and injuries can occur. Running and cycling are two triathlon disciplines most frequently affected by injuries. A 2022 study found that overuse injuries, which include damage to bones, muscles, ligaments, or tendons due to repetitive stress, were the most frequent injuries, with an incidence

range of 37%-91%. Acute injury (such as shoulder dislocation and ankle sprain) incidence range was 24%-27%. The knee and spine were the most frequent locations of injury.

Elite athletes had a lower incidence of overuse injuries. The acute injury incidence (27%) was the highest injury among non-elite athletes.[29] Musculoskeletal injuries, common in ultra running, affect bones, joints, cartilage/menisci, muscles tendons, ligaments, and bursae. Around 90% of injuries are overuse in nature. Stress fractures are possible with high mileage training and or with those with poor nutrition.

Extreme Weather Conditions

Most endurance races are held outdoors, often in extremely harsh locations such as a hot and dry desert (Marathon des sables), snowcapped high mountains (Everest Marathon), high- and low-altitude combination run at Death Valley (The Badwater 135), arctic northern territories (6633 Arctic Ultra), etc. Those athletes are naturally exposed to a very high risk of dangerous physical condition changes such as overheating, dehydration, and hypothermia. The 2021 ultra running tragedy in China, where 21 people died due to extreme cold weather, is one of the examples.[30]

Even in races that are not held in such extreme environments, risks are still high. The most reported medical problem during half-Ironman events was dehydration (50.8%).[31] Drinking too much water could also cause problems. Studies in Germany also found that more than 10% of the 1,100 competitors they researched suffered from hyponatremia, dangerously low blood sodium levels caused by drinking too much water.[32]

Air or Water Pollution

When swimming, especially in freshwater, athletes are at risk of contracting a bacterial infection like leptospirosis or others. Due to increases in extreme rainfall and flooding driven by climate change in recent years, bacterial contamination in open water is becoming more frequent, exposing athletes to a higher risk of waterborne infections and diseases.[33] Air pollution caused by various factors including increased wildfire smoke[34], carbon dioxide, dust from draughts, and other natural events could also threaten athletes' health, especially for those who have respiratory issues.

Performance Enhancing Drugs

Doping, unfortunately, is not a stranger to endurance races. A considerable number of doping cases have been reported in the past years, including the latest sanction of a professional triathlete who used Erythropoietin (EPO).[35] Although the use of performance-enhancing drugs is explicitly prohibited and the exact number of substance abusers is unknown, the fact remains that some athletes, both professionals and amateurs, continue to use substances such as growth hormone, sympathomimetics, erythropoietin, stanozolol, testosterone, norandrosterone, nandrolone, anabolic steroids, and clenbuterol. Studies conducted in Germany found that older (aged 39 and higher) athletes, or athletes who had over ten years of competitive endurance sports, or those who trained more than eight hours per week tend to use physical enhancing drugs more frequently.[36] These substances can have serious side effects ranging from dependence to the development of tumors, diabetes, organ damage, psychological disorders, and more.

Neurological System and Mental Health Issues

Triathlon and ultra running races can benefit athletes' neurological systems and mental health. Regular exercises lead to better mood and healthier bodies. Studies also suggest lifelong endurance training helps maintain the cortical brain reserve.[37] While endurance races bring many positive effects, research shows that elite athletes are at elevated risk of mental health issues with higher cumulative lifetime stress, mainly triggered by the intense demands, career instability and highly competitive environment surrounding this sport.[38] Studies also show that depression and suicide risks are higher in endurance athletes such as ultra runners.[39]

Governance and Guidelines, Low Entry Barriers

Due to the extreme nature of the sport, endurance races are exposed to higher degrees of severe accidents and health risks. Yet the current race rules and qualifications often do not provide adequate guidelines to athletes, especially in amateur events. Triathlon has a more established global governance body, i.e., World Triathlon and its chapters, providing safety protocols and guidelines, but UER still lacks such unified governance.

Although most athletes are aware of the risks they are taking by participating in these events, some have accused race organizers of failing in their duty of care, ranging from not providing adequate medical staff to holding the events despite dangerous environmental conditions such as high temperatures, extreme weather, and hazardous road conditions, resulting in death or severe injury of participants.[40]

Responding to those rising demands, authorities are taking more proactive measures to protect athletes' health risks. For example, some organizers are canceling, shortening the races[41], and reimbursing/offering alternatives to athletes when they decide the conditions are not safe.

Implications and Recommendations for Underwriting

Case Study 1

Olivia Jones, an American female, age 33 non-smoker, 5'2, 165 lbs (155cm, 74kg), lost 75 lbs (34kg) in the past year after having a gastric bypass surgery 18 months ago. She disclosed in her application that she has changed her eating habits since her surgery, started exercising on a regular basis, and even completed a sprint triathlon. She recently signed up for a long-distance triathlon. She is applying for life coverage of $750,000. How would you underwrite her?

When underwriting applicants with a history of gastric bypass, underwriters must look at how they have been doing since the surgery. Questions to be asked include: Has she adapted well, maintaining the weight loss? Is there any mention of side effects or complications after the surgery?, and so on.

In this particular case, we recommend examining Olivia's post-gastric bypass surgery medical records to make sure she is getting regular medical follow-ups and has no ongoing malabsorption issues. In life insurance applications, there are no specific questions about endurance sports, as some of them may or may not fall under extreme sport. It is up to the underwriter to determine if the info is given if the event is or not on the spectrum of extreme sport.

If Olivia only engages in short-distance triathlons, no specific nutrition or hydration accommodation is required. But as she has registered for a long-distance triathlon, underwriters need to confirm that she is not already experiencing any malabsorption issues.[42] Apart from this and any other particular issues, as long as she is properly trained and is adequately managing her diet restriction, she should not be at an increased risk.

Case Study 2

Bruno Michel, a 51-year-old French male, non-smoker, 5'10, 185 lbs (178cm, 84kg), has no current health concerns shared on the application. He travels worldwide for pleasure, wears a smartwatch, and is very athletic. In the past 25 years, he competed in multiple races including marathons, Ironman, and cross-country skiing. During his annual executive checkup, he was diagnosed with "athlete's heart." Despite that, he is planning to participate in the upcoming race: Marathon des Sables, one of the most challenging endurance races in the world. He is applying for a permanent life policy with $1,000,000 coverage. Should you be concerned as an underwriter?

It is crucial that underwriters approach each case with diligence when encountering unfamiliar information. Quick research about the particular race event this applicant is planning to participate could yield valuable information. In this case, Bruno is training for one of the most challenging ultra endurance races in the world. Athletes have to race in the middle of the scorching Sahara desert for six days, running approximately 250 km (160 mi), with the longest single leg being about 91 km (57 mi).

If the underwriter's company manual does not include related guidelines, this case should be handled with caution. Further research needs to be conducted through various sources, including social media to gather the applicant's information, such as what other events he participated in and if he had any injuries or adverse medical conditions. The red flag in this case is that he was diagnosed with an athlete's heart condition. It is critical to obtain a copy of this report and have a further assessment by a medical officer. If the final diagnosis is that of an athlete's heart with no evidence of heart muscle damage, then standard rates may be applied.

Conclusion

Triathlon and ultra running bring their athletes special excitement and experience that no other sports may offer. Although relatively safe for the majority of well-prepared athletes, underwriters need to be aware that people exercising this extreme sport, especially those at older ages (50+), could be exposed to elevated mortality and morbidity risks as we have discussed throughout this report.

There are obvious challenges, such as ensuring applicants disclose the relevant information on extreme sport participation. This issue arises because most insurers do not ask applicants about their involvement in extreme sports. This can be improved if insurers add equivalent questions to their application forms.

We suggest underwriters who encounter applicants participating in these sports "go the extra mile" and conduct additional research. It does not have to be extensive – just getting to know the types and places of the races through public resources such as social media and the Internet will aid underwriters in assessing the applicant's risk properly. For elite athletes or those competing at an ultra-challenging high-profile race, a thorough review of information in a medical report is recommended to properly assess the case. For more in-depth and updated information, underwriters should consult medical advisors or guidelines published by global and local medical associations.

SCOR is committed to offering in-depth underwriting expertise and support to provide coverage to elite or amateur extreme sports athletes. For further information and underwriting guidance, contact your local SCOR underwriting experts.

We invite you to follow this ongoing series as we tour the world of extreme sports, tapping into SCOR's network of expert insurance professionals – and amateur athletes – whose passion and knowledge allow SCOR to break through common misconceptions and offer a better understanding of the true risks surrounding extreme sports for amateurs, professionals, and – occasionally – even spectators. We also explore the most recent trends and implications of new medical developments, predict how a changing climate and other evolving factors might impact these sports, and highlight hidden links between Life and Health and Property and Casualty coverage in the world of extreme sports.

Endnotes

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