



BLS TEENAGE PROVIDERS ON BICYCLE AT THE ING NIGHT MARATHON IN LUXEMBOURG

2018 marked the 13th edition of the ING Night Marathon in Luxembourg. In collaboration with the Luxembourg Resuscitation Council LRC up to 20 students of the **First Aid Team of the 'Athénée de Luxembourg'** (EHTK) (1) have been called upon over the last three years as first responders and BLS providers in addition to the professional medical support of the race. All in all, about 16,000 runners took part. About 1,200 runners finished the marathon, about 7,000 runners finished the half-marathon and about 7,000 runners were part of a team taking the marathon distance.



Cardiac arrest at marathons and half-marathons

A study of cardiac arrest associated with marathon and half-marathon races in the United States has revealed that in the decade between 2000 and 2010 the incidence rate of attacks was 0.54 per 100,000 participants. "Marathons and half-marathons are associated with a low overall risk of cardiac arrest and sudden death. Cardiac arrest (...) occurs primarily among male marathon participants; the incidence rate in this group increased during the past decade." (2) In Japan, however, a study of a period of 15 years (1999-2013) has shown that "the incidence rates were 2.00 per 100,000 participants in full marathon and 2.50 per 100,000 participants in half-marathon (...) and the number of incidents has been increasing every year." (4)

In his article "Why do Healthy People Die Running Marathons?" David Kroll came to the following conclusion in 2014: "So even if a defibrillator was at each water station – usually spaced every two miles – even a five-minute miler wouldn't be able to get the apparatus to the victim in time." (5)

Therefore, in her article "How 4 Victims of Cardiac Arrest were Saved" Kelley Stump claimed in 2016 that "the only person there to help is a fellow runner" providing CPR (6).



Over the 13-year period that the ING Night Marathon Luxembourg took place no death of a runner had to be deplored (7). But there were some incidents, especially in 2007, when a runner made a cardiac arrest at km 9. He survived because fellow runners immediately gave him CPR for 30 minutes before the ambulance arrived.

On the one hand, this shows how important it is to sensitize the public and to motivate people to train how to provide CPR. The Luxembourg Resuscitation Council with its campaign "réagis!" is promoting CPR for the larger public in Luxembourg.

On the other hand, an important conclusion was drawn by the Managing Director of the Night Marathon Erich François and the secretary of the LRC Carlo Clarens in 2016 concerning the Luxembourg Marathon in particular: BLS providers had to be present on the course route in addition to the professional medical support body of the race.

Therefore, students of the First-Aid Team of the secondary school 'Athénée de Luxembourg' were called upon by their coordinator Jean-Louis Gindt to provide this aid as volunteers.



To prevent medical incidences during the race, every runner of the marathon has the option to switch to the half-marathon distance at km 14. Indeed, 4-5% of the runners choose this possibility when they feel that they are not able to do the marathon distance in good health conditions.

As students we felt useful and needed by having been given such a responsibility as BLS teenage providers. The runners also felt more relieved as they knew there were people ready to intervene when necessary, directly, on the spot. I personally loved the experience. - Isabelle

Concept of First Responders and BLS providers

All students, aged 15 to 19, engaged at the ING Night Marathon are active members of a first-aid team at a secondary school. They all have accomplished a complete course of first aid.

Furthermore, they have been especially trained by BLS instructors of the LRC/ERC to provide CPR as "first responders réagis!" at the marathon race.

The students are present at the 16 refreshment points which are located at every 2.5 km along the route of the marathon and the half-marathon. They are all equipped with a first-aid basic kit and a pocket mask. Their aim is to be closer to the 16,000 runners and the thousands of spectators of this huge event in Luxembourg City in order to provide First Aid support more quickly. The first responders ride an official bicycle and are allowed to move along the runners' course.

In the 2018 edition all first responders were even equipped with an AED. For the students this voluntary engagement is a huge opportunity to provide first aid outside the school commitment and to be involved in one of the greatest sport events in Luxembourg.

Thus, a pedagogical target has been reached as well as a medical and social one.

ING Night Marathon – 28/05/2016

In the first edition as "first responders réagis!" 15 students were engaged. They were contacted on their mobile phone by the professional medical support. 10 out of the 15 first responders had 17 missions, and 10 times they were the first to be on the spot with their bicycles. In 13 cases of these 17 emergencies an ambulance was called (8). Our first responders provided help until the ambulance arrived. Fortunately, no cardiac arrest has had to be detected yet. But there was one very serious case of a man of about 40 years of age who collapsed at km 26 and briefly lost consciousness and stopped breathing for seconds. Although CPR was not needed, our first responders were able to provide crucial first aid support for 18 minutes until the ambulance came.



ING Night Marathon – 27/05/2017

For the second edition of the "first responders réagis!" the professional medical support team was sceptical about the technicalities of calling our volunteer students for an official mission. But the Managing Director Erich François insisted on the presence of the "first responders réagis!" team on bicycles along the runners' course.

The concept was slightly adapted: The student volunteers cover the area of about 1 km before to 1 km after a refreshment point on their bicycles in order to look after runners who may have a problem. Thus they are able to show their presence in case of general need.

13 students were going round on their bikes, supported by Carlo Clarens and Jean-Louis Gindt. In 19 cases they could provide first aid, mainly in minor incidences. An ambulance was called 6 times, either by our first responders or by other bystanders.



ING Night Marathon – 12/05/2018

In the third edition of our "first responders réagis!" the relationship with the professional medical support team was the same as in 2017. 20 volunteers covered again the gap between two refreshment points on their bicycles. However, there were three improvements:

- Every volunteer had had special training at an ERC BLS course.
- Every volunteer was equipped with a defibrillator.
- And 6 adults (teachers or LRC members) and 14 students were involved in that edition. The group was coordinated by J-L Gindt. In 20 cases they had to intervene. As in 2016 and 2017 there were mainly minor incidences, but one serious case. A woman had been running the half-marathon together with her cousin when at km 18 she collapsed and did not breathe anymore. Two fellow runners (their identity is not known) gave her 2 cycles of CPR. In the meantime, one of our "first responders réagis!" came along on her bicycle and provided help.

At that moment the patient was already breathing again and had a fast pulse. The 2 runners continued their course. A policeman who had been patrolling the course called the ambulance which arrived 9 minutes after the incident. After a short stay in hospital the woman could go home. The cause had probably been an exertional heat stroke.

Testimonies by volunteers

- * Giving time on this Saturday evening was a really good investment! - Lynn
- * The task to participate as a first responder at the Marathon was a real challenge. You didn't know which mission was pending, from a small patch up to resuscitation. - Myriam
- * The assignment as first responder is a great idea, as it gives teenagers the opportunity to help the runners and audience in distress rapidly. - Jonathan
- * On our bicycles we get quickly to where our help is needed. - Max

Conclusion

It is a huge experience for the BLS teenage providers to be present as "first responders réagis!" at this Marathon. Over three years 50 students have offered their assistance as "first responders réagis!" in 56 different cases. As head of the First Aid Team of the 'Athénée de Luxembourg' I am determined to continue this experience together with the LRC for pedagogical and medical reasons. Our presence on bicycles along the runners' course has proved to provide first aid very rapidly. As every first responder has had an AED on his bicycle since 2018, a BLS provider with a defibrillator can be on the spot in less than 3 minutes, at any location along the whole distance of the course. We are not competition but complementary to the professional medical support of this marathon event in Luxembourg City.

References:

- 1 The Athénée de Luxembourg is a secondary school in Luxembourg which has a student First Aid Team (EHTK) since 1998. <http://www.ehtk.lu>
- * First Secondary School in Luxembourg sampling CPR with MiniAnne: www.ehtk.lu/wp-content/pdf/poster_ERC_2009.pdf
- * Looking Back on 8 Years of Teaching CPR: www.ehtk.lu/wp-content/pdf/AP026.pdf
- 2 Cardiac Arrest during Long-Distance Running Races, The New England Journal of Medicine, January 12, 2012 www.nejm.org/doi/full/10.1056/nejmoa1106468
- 3 American Heart Association News, Cardiac arrest stopped this half marathon runner mid-stride, February 22nd, 2018 news.heart.org/cardiac-arrest-stopped-this-half-marathon-runner-mid-stride/
- 4 Analysis of Sudden Cardiac Arrest during Marathon Races in Japan, Scientific Research Publishing Inc., July, 2017, www.scirp.org/journal/PaperInformation.aspx?PaperID=78003
- 5 David Kroll, Why Do Healthy People Die Running Marathons?, April 2014, www.forbes.com/sites/davidkroll/2014/04/15/why-do-healthy-people-die-running-marathons/#2d7b346d1363
- 6 Kelley Stump, How 4 Victims of Cardiac Arrest Were Saved, These runners are alive today because fellow runners gave them CPR, September 27, 2016, www.runnersworld.com/runners-stories/g20823579/how-4-victims-of-cardiac-arrest-were-saved/
- 7 List of marathon fatalities, en.wikipedia.org/wiki/List_of_marathon_fatalities
- 8 The number of ambulances reported in this study only relates to the number of ambulances where a "first responder réagis!" was present.