ADDIS ABABA UNIVERSITY COLLEGE OF NATURAL AND COMPUTATIONAL SCIENCES DEPARTMENT OF SPORT SCIENCE

PERFORMANCE DIFFERENCES IN CROSS-COUNTRY CHAMPIOSHIPS BEFORE AND AFTER COVID-19 INTERVENTION: COMPARING THE 37TH AND 38TH JAN-MEDA INTERNATIONAL CROSS-COUNTRY CHAMPIOSHIPS

BY

BIRHANU ASSEFA ESHETU

JUNE, 2021

ADDISABABA, ETHIOPIA

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ADVISER:

Zeru Bekele (PhD)

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JUNE, 2021

ADDIS ABABA, ETHIOPIA

Statement of Certification

This is to certify that the thesis prepared by Birhanu Assefa on the topic entitled assessing factors affecting the performance of international cross country running in the case of Ethiopian athletes, Submitted to in partial fulfilment of the requirements of degree of master of science in Sport Science compiles with the regulation of the university and meets the accepted standards with respect to originality and quality.

Advisor: Zeru Bekele (PhD)

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Statement of Declaration

I hereby declare that this thesis represents my own work and had not been previously submitted to this or other institution for a diploma, degree or other qualification. Citations from the other authors were listed in the references part.

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This thesis has been submitted for examination by my approval as a university adviser

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Date_____

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Abstract

Since the COVID-19 was declared as a world Pandemic different local and international sport competitions have significantly been affected. The purpose of this study was to identify the performance differences between athletes who involved in 2020 (37th) and 2021(38th) Jan-Meda International Cross Country Championship. In this study a descriptive - comparative research design was applied. The cross country results of 320 individual athletes who ranked in the top 40 during the 37th (2020) and 38th (2021) Jan-Meda International cross-country championship were used for data analysis. Of these athletes 160 were male and the rest 160 were male athletes. Convenience sampling technique was the sampling technique used to select the top 40 finishers. Telephone interview and document analysis were the two major data collection instruments. Based on the independent sample t-test results there was significant performance difference between the top 40 female athletes who participated in the 6km ($p<0.005$) and 10km ($p<0.005$) Jan-Meda International cross-country championships which were held during the 2020 (37th) and 2021(38th) competition calendar. Similarly, significant running performance differences were identified both in the male 8km ($p<0.005$) and 10km ($p<0.005$) races which were held in 2020 and 2021 championships. Although different and inconsistent inter-athlete deviations were reported in the majority of the races and rank categories athletes who participated in the 2021 championship showed better performance in all events and race categories.

***Key terms**: running performance, cross-country championship, rank categories*

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

It was in March 13th, 2020 that the Federal Democratic Republic of Ethiopia Ministry of Health confirmed the Corona Virus disease case in the country. Following this the Government declared a State of Emergency Proclamation (Council of Ministers Regulation, 2020) on the 20th of April, 2020 to curb the spread of the disease in the country. According to the State of Emergency Proclamation No. 3/2020 and implementation regulation No.466/2020 Article 3 No. 20 it was stated that 'It is prohibited to engage in sport competitions or any group sport activities.' Based on this declaration all group sport trainings and sport competitions were banned and sport clubs, sport academies, school sports, as well as sport facilities were closed. Following these actions athletes who had been recruited under different sport/athletics clubs returned to their home and stayed for more than seven months without getting organized sport trainings from their coaches/clubs.

In between March 13, 2020 to the middle of June 2021, in Ethiopia more than 275,000 corona virus cases, 4300 deaths and 254000 recovered people were reported (Worldometers, 2021). Although the spread of the disease and number of deaths significantly increasing, starting from October…the government has lifted the ban/restriction and different institutions had started their operations. Among this institution different sport clubs re-opened and called their athletes for preparing different national competition including but not limited to the 38th Jan-Meda International championship. In between April 2020 and October 2020 athletes in different sport clubs and in athletics clubs in particular were forced to quit their individual trainings and/or participated in individual trainings with no access for training facilities.

Athletes in different athletics events spent the majority of their time during the restricted months in isolation from their club friends, teammates, coaches, training facilities and other technical and logistic services although performance improvements were reported in different athletics events in 2021. Unlike other African and European countries the measures taken to curb the spread of the disease in Ethiopia was not very strict. In Ethiopia no complete shutdown was declared in the state of emergency and athletes had the opportunity to train

individually but not in organized form of trainings. The athletes remained in such situation for seven months and they have been actively involved in individual trainings till the ban was lifted. In between April and October 2020 no official athletics competitions (track events) were conducted and the athletes were training without having officially announced competitions. Although the Federation publicly announced to host 11 competitions as part of its annual competition calendar only six competitions were organized at the country level (EAF, 2020).

Since the COVID-19 was declared as a world Pandemic different local and international events have significantly been affected. Since the pandemic is fatal and has been spreading throughout the world it has been affecting people's mobility (Cheshmehzangi et al., 2021). Due to this reason at the international and local level the number of athletics competitions reduced till the last months of 2020. However, starting from the beginning of 2021 most countries opened their boarders for international competitions and the number of international competitions started to increase. Following the re-opening of these competition athletes were able to demonstrate their outstanding performance in different stages of competitions. In these competitions a number of world records, especially in track events, were broken. Likewise, Ethiopian track and road race athletes were able to show their outstanding athletics performance in the world competition arenas although they were isolated from organized club trainings. It was with this intention the current study was designed to identify the performance differences between athletes who involved in the 37^{th} and 38^{th} cross-country participants. Thus, the purpose of this study was to identify the performance differences between athletes who involved in 2020 (37^{th}) and 2021(38^{th}) Jan-Meda International Cross Country Championships.

1.2 Statement of the problem

Starting the time the disease recognized by the WHO as a pandemic the attention given by and the extent of the problem in which the disease has been causing in different countries varies significantly. Following the spread of the disease different social, economic, health and political events have been affected. Among the many social events the challenges that athletes and the sport community have facing due to the disease is none. Since March 2020 Ethiopia as a country declared a partial lockdown/prevention in social gatherings in some selected parts of the society like children and youth in schools, athletes and the coaching staff in sport community, spiritual/religious events etc. As part of the declaration all forms of individual and group/team athletic trainings and sport competitions were suspended and

clubs, training camps and sport academies closed and released their athletes. Based on the decision of the government from March 2020 to November 2020 formal training activities were interrupted and no more serious training practices were implemented although the athlete/players were not closely supervised by their coaches they were allowed to train by themselves. During these times the athletes were not getting professional coaching supports from their coaches, nutrition, accommodation and medical services as they had been receiving from their clubs/academies. The time from March to November was considered as the difficult time for athletes/players since they were facing challenges like train individually (they commonly used group coaching), difficult to manage training load (lack the skill and knowledge of load management), challenge to apply proper recovery strategies etc. In Ethiopian context this situation is very strange for our athletes since the vast majority of the athletes are dependent on their coaches and a new experience in their athletic career.

Although all the professional athletes in the country were forced to stay in such a situation they were allowed to resume their training after seven months of training interruption…….and went to different local competitions after relatively short preparation period. Thus, the purpose of this study was to identify the performance differences between athletes who involved in 2020 (37^{th}) and 2021(38^{th}) Jan-Meda International Cross Country Championships.

1.3 **Research questions**

This study tried to answer the following research questions

- Is there any significant performance difference in the 37^{th} and 38^{th} female 6km Cross-country championships?
- Is there any significant performance difference in the 37^{th} and 38^{th} male 8km Cross-country championships?
- Is there any significant performance difference in the 37^{th} and 38^{th} male 10km Cross-country championships?
- Is there any significant performance difference in the 37^{th} and 38^{th} female 10km Cross-country championships?
- At which rank level athletes show less diversified performance during the 37^{th} and 38^{th} Cross-country championships?

1.3 **Objectives of the study**

This study has the following general and specific objectives.

1.3.1 **General objective**

The general objective of this study was to identify the performance differences between athletes who involved in 2020 (37^{th}) and 2021(38^{th}) Jan-Meda International Cross Country Championship.

1.3.2 **Specific objectives**

The following are the specific objectives of the study.

- To identify the performance differences between the 37^{th} and 38^{th} female 6km Cross-country championships;
- To identify the performance differences between the 37^{th} and 38^{th} male 8km Cross-country championships;
- To identify the performance differences between the 37^{th} and 38^{th} female 10km Cross-country championships;
- To identify the performance differences between the 37^{th} and 38^{th} female 10km Cross-country championships;
- To identify the performance differences among the athletes in the same race events during the 37^{th} and 38^{th} Cross country championships;

1.4 **Significant of the study**

This study has the following significances.

- It might help coaches to recognize the level of the athletes' self-coached understanding
- It might help sport academies, clubs and individual athletes

1.5 **Delimitation of the study**

This study was delimited to the performance of male and female Ethiopian athletes who involved in the 2020 and 2021 International Cross Country Championships. The study has used the top 40 female 6km and 10km time and the top 40 male 8km and 10km time of each athlete who took part in the competitions.

1.6 **Limitations of the study**

This study has the following drawbacks.

- Lack of individual training data of the study participants during the seven months training interruption (training restriction).
- Used only two competition years as a source of data.
- Mainly used document analysis as a data collection instrument.
- Used secondary sources of data.

1.7 Operational definitions

Altitude: the **vertical elevation of an object above a surface** (such as sea level or land) of a planet or natural satellite.

COVID – 19: a coronavirus responsible for an outbreak of serious respiratory disease in humans, especially the major pandemic beginning in 2019.

Cross country championship: is the most important competition in international cross country running. Formerly held annually and organised by World Athletics (formerly the IAAF).

Detraining: is a partial or complete loss of training induced anatomical, physiological and performance adaptations, as a consequence of training reduction or cessation.

Jan-Meda International Cross-country championship – a yearly International cross-country championship organized by the Ethiopia Athletics Federation.

Lockdown: a state or period in which movement within or access to an area is restricted in the interests of public safety or health.

Performance: Athletic performance describes the efforts made by an athlete to attain specific performance objectives over a period of time**.** The natural talent or fitness of the athlete will impact the level of performance; all athletes ultimately measure performance by their own standards.

Rank Categories – group of cross-country athletes who stood from 1^{st} -10^{th}, 11^{th} to 20^{th} , 21^{st} to 30^{th} and from 31^{st} to 40^{th}.

1.8 Organization of the study

This study is classified into five chapters. The first chapter deals with the problem identification. Chapter two and three refers about review of related literature and study methodology respectively. Chapter four presents data organization, interpretation and analysis. The final chapter is about the conclusion and recommendation part of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 COVID -19

Coronavirus disease (COVID-19), also known as the ‘‘Wuhan coronavirus,’’ is an illness caused by the enveloped RNA SARS-CoV-2 virus identified in Wuhan (China), a causative agent of a potentially fatal condition that has become a significant public health concern worldwide. (Rothan HA, Byrareddy SN,& J Autoimmun ,2020).

The SARS-CoV-2, a member of the beta coronavirus genus, is capable of infecting humans and animals. Coronaviruses are common viruses in nature, and several of them can infect humans, causing mild diseases in the form of colds. (Wackerhage H, Everett R, Krüger K, Murgia M, Simon P., & Gehlert S, et al 2020). Sport exercise and COVID-19, the disease caused by the SARS-CoV-2 coronavirus. Ger J Sport Med. However, genetic differences between this virus and others from the same family makes it more contagious and aggressive. As a consequence, on January 30, 2020, the World Health Organization (WHO) determined that the outbreak of COVID-19 became a Public Health Emergency at the international level. WHO. Considerations for Quarantine of Individuals in the Context of Containment for Coronavirus Disease (2020) COVID-19.

WHO Member States that were the advised to consider options to prevent the introduction of the disease to new areas or to minimize human to-human transmission in zones where the virus COVID-19 was already circulating. Accordingly WHO recommendations, many countries imposed social distance measures to contain the spread of COVID-19 such as restricting travel from abroad, quarantining citizens returning to their home countries, limiting internal movement, massive testing, and in some cases of countries severely hit by the epidemic, a major lockdown, confining all the population and maintaining only essential

services. Coronavirus: What measures are countries taking to stop it? (2020) BBC news; https://www.bbc.com/news/world.

Unfortunately, current measures seem insufficient to control the pandemic as herd immunity seems to be really low (prevalence of antibodies varies between 1 and 10% in countries such as Spain and Italy, and warm weather does not affect the virus. Only the development of a future vaccine will stop this outbreak in the near future. (Wackerhage H, Everett R, Krüger K, Murgia M, Simon P,& Gehlert S, et al 2020). Sport exercise and COVID-19, the disease caused by the SARS-CoV-2 coronavirus.

Future events regarding the presence of covid in humans it is something that the medical community cannot determine yet, so we should be prepared for any potential scenario.

2.2 **The effects of COVID-19 in Sport and Athlete Performance**

The spread of COVID-19 and the measures taken by the governments have forced the relocation, interruption, partial or total cancellation of an endless list of sports competitions since January 2020. How the virus has impacted sporting activities around the world. BBC Sports; (2020).

During the COVID-19 lockdown, regular training routines of athletes around the world have been discontinued. An athlete's body cannot become a bottomless sink-hole for physical training. This un expected breaks damage the quality and quantity of training schedule, distancing the athlete from their daily routines in regular sports facilities. (Andreato LV, Coimbra DR, & Andrade A2020). Challenges to athletes during the home confinement affected by the COVID-19 pandemic.

Training reversibility (" If you Don't Use it , You Lose It "), also known as detraining, is crucial to understand many of the changes that athletes undergo during training cessation, impairing their future performance.

The consequences of prolonged physical inactivity at a muscular level are well-known. Initial studies about long rest periods or long detraining in healthy subjects found phosphorus, calcium, and nitrogen losses on skeletal muscle due to inactivity. Cardiac response with 28 percent average losses of VO2max and 11 percent in heart volume also seems to be impaired by long resting periods. (Narici M, De Vito G, Franchi M, Paoli A, Moro T, & Marcolin G, et al 2020).

The rate of loss is unequal in each physical capacity, being higher for the endurance and strength endurance than in speed or maximal strength. An accepted convention is that each week of lockdown brings up to 10 percent overall loss in components of fitness. (Eirale C, Bisciotti G, Corsini A, Baudot C, Saillant G, &Chalabi H 2020).

According to King AJ, Burke LM, Halson SL, & Hawley JA (2020), declines of approximately 90 percent daily activity levels in healthy young men athlets, assessed in steps/day, entailed a 17 percent decline in muscle insulin sensitivity, a 7 percent reduction in cardiovascular fitness, and a 3 percent decrease in lean leg mass levels, with reduced myofibrillar protein synthesis rates, and Other expected adverse effects of lockdown include an increase in body mass, body fat percentage, loss of mental sharpness and toughness, insomnia and depression, swelling of lymph nodes. (Jukic I, Calleja-González J, Cos F, Cuzzolin F, Olmo J, Terrados N, et al. and Narici M, De Vito G, Franchi M, Paoli A, Moro T, Marcolin G, et al 2020).

Detraining is the occurrence of losses in sport performance and physiological adaptations when the training is reduced or completely ceased . In most resources, detraining is defined as an inactivity period of or complete loss of training induced, that appears following an intense training period. (Madsen K, Pedersen PK.,& Djurhuus S, et al 1992). The impacts of the detraining period can be classified in to two topics as physiological and physical.

Physiological impacts are changes observed in the cardiovascular and respiratory systems. Physical impacts are declines in muscle force, muscular endurance, speed, flexibility, agility, and body composition . (Vagner R.,& Andrade E, Masudo SM, et al 1998). Detraining is examined in two periods in general. The first of these periods, short term detraining connotes a detraining period of less than four weeks. On the other hand, a detraining period longer than four weeks is called long-term detraining effects. (Mujika I.,& Padilla S 2000).

2.2.1 Social impact

In face of the deserted streets, social networks play a fundamental role during covid pandemic crisis. Almost 4.57 billion people were active social media users as of July 2020, encompassing 59 percent of the global population. Indeed, the power of social networking is such that the number of worldwide users have dramatically increased during COVID-19, with approximately 3.43 billion monthly active social media users and 3.91 billion monthly Int. (J. Environ. Res. Public Health 2020) active computer users. (Clement, J July 2020). Worldwide Digital Population. Positive social contacts such as coaches, managers, trainers, and other athletes can encourage athletes to beware of detraining and continue the home training. (Park, J.,& Williams 2011).

Indeed, this cognition ability allows an athlete to perform and experience motor actions in the mind without actually executing such actions through the activation of muscles . (Moran, A.; Guillot, A.; MacIntyre, T,& Collet, C 2012).

It has been revealed that in some muscles, imagined contractions during visualization training appear to increase strength by inducing only the central nervous system adaptations. (Folland, J.P.; Williams, A.G2007b,& Jeannerod, M 2006). reported that the activation of the brain areas needed to perform an action during kinematics motor imagery is similar to the activation that occurs during the preparatory planning stages that eventually lead to the action.

Hence, we draw athletes' attention to the fact that they can:

Differentiate the positive and relevant films posted across different types of social media platforms, providing insights into their homes, skills training, and challenges against other athletes (Hayes, M 2020). Exploit the power of social media , internet, videos, and others to spread the positive messaging and encourage appropriate behaviours. (Leng, H.K.; Phua & Y.X.P 2020). Promote health messages related to physical activity in online social spaces. Consult several social media campaigns specializing in COVID pandemic confinement athletes training to take advantages to take their media coverage. (Hayes, M 2020).

2.2.2 Economic impact

COVID-19 is having a substantial impact on sporting programmes as some of the world largest sporting events or disciplines come to view in 2020. Football much anticipated European 2020 tournament has been postponed for 12 months while play-offs have been postponed till June 2020 at the earliest.

The international Olympic committee was committed to staging the Tokyo 2020 Olympics this summer without delay. However, they have now made the decision to postponed the games to 2021, a decision that is supported by athletes and their respective nations or countries. In a similar vein, the Australian Formula one Prix has been postponed with Bahrain and Vietnam opting to cancel their fixtures until further notice. These are but a few examples; golf, table tennis, athletics, basketball, rugby, cycling, snooker and ice-skating fixtures have all faced cancellations and delays in an attempt to curb the spread of disease. Inevitably this will have a significant financial burden, small clubs may charge fees for the use of their facilities, sell goods to their athletes. Some large clubs, such as soccer clubs, obtain a huge income from selling sports merchandise and replica kits, the gravity of which has yet to come to light. (March 20 2020) https://www.independent.co.uk/sport/

2.2.3 Health impact

The disadvantages of Social Networks on the mental health of Athletes during home confinement As media continuously report and often disseminate information related to the numbers of un healthy sick and dead to keep everyone informed of the pandemic situation, athletes in total confinement are exposed to this overabundance of the information, resulting in negative emotions, less perceived self-efficacy, poor sleep, less appetite of food and feelings of loneliness or fear, all associated with higher distress of mental health. (Andreato, L.V.; Coimbra, D.R.; Andrade, A, Leng, H.K., & Phua, Y.X 2020). In this context, sleep deprivation may be a frequent source of stress for athletes during this pandemic. (Toresdahl, B.G.; Asif, I.M & Clement, J 2020).

Against this background, it has been well documented that late-night internet addiction is associated with diverse health problems that have been related to delayed sleep onset, and sleep disturbances, that induce negative associations with daytime functioning, persistent fatigue, daytime sleepiness, poor appetite, anxiety, mood alterations, depression, almos all behavioural issues, attention deficit hyperactivity disorder, impaired concentration and less performance, caffeine, chat and illicit drug use, increased daily alcoholic consumption, increased metabolic risk and body mass index, and family conflicts. (Andreato, L.V.; Coimbra, D.R.;& Andrade, A 2020).

More research is necessary for psychologists, psychiatrists, and sport sociologists to study the immediate impact of the this pandemic on the mental health and the quality of life of athletes, examining levels of psychological impact, anxiety, depression, and mental stress. Monitoring the individual and collective psychological state of athletes as part of targeted interventions is an absolute necessity during this adapted lifestyle.

During confinement, it is essential to balance calorie intake and the calorie expenditure to prevent an energy deficit or surplus. However, this period is a new situation when boredom

and stress cause athletes to lose their usual daily activities and incorporate bad nutritional habits, such as overeating or snacking, especially of foods rich in sugars, “comfort foods”, fats, and highly processed and readily available nutrients. In view of the above considerations, (Muscogiuri , G 2020). reported that these negative energy nutritional habits could increase the risk of developing obesity, and other cases which is often complicated by coronary heart disease, stroke, and lung disease, which have been demonstrated to increase the risk for more serious psychological disteurbances of the pandemic. Indeed, dieticians and nutrition experts are invited to educate and provide advice to athlete’s. In this regard, the WHO. Healthy Diet. recommended the importance of hot drinks and water on a regular basis, especially in this pandemic period or covid - 19.

2.3 The effects of COVID-19 in athletics Performance

The COVID-19 pandemic is now a major global health issue in the world, representing the most dangerous respiratory disease since the 1918 H1N1 influenza pandemic (Casadevall and Pirofski, 2020). Spain is the second most affected nation in the world, next to the Us, with 152,446 confirmed cases, and the first in the world in the number of deaths, with 15,238, being the country, with a number of 350, with more deaths this pandemic million people on April 11, 2020 (World Health Organization, 2020). On half of March, the Spanish Government declared about this pandemic a nationwide lockdown ordering people to stay at home. (Gobierno de España, 2020).

The COVID-19 crisis is a new threat that put the adaptive mechanical difficulties of the human being, both physiologically and psychologically, through its paces. The human being is a highly adaptative organism, for this reason we developed in our evolution different physiological and psychological defence mechanism that allow us to overcome different eliciting contextual scenarios, but some of these phylogenetic defence system could produce non adaptative behaviour in current society and specially in exceptional situations (Clemente-

Suárez et al., 2020). In the current global home confinement situation due to the pandemic of covid, most individuals are exposed to an unprecedented stressful situation of unknown duration, being a focus of stress, anxiety, obesity, disconcertedness and depression or un health sleep due to a negative appraisal of the environment and self-protection behaviours (Altena et al., 2020; Li et al., 2020). The lack of vaccination and the actual no population immunity due to the herd effect increase the feeling of danger and uncertainty in this pandemic health crisis (Clemente-Suárez, 2020). The perception of uncertainty and lack of control is a source of psychophysiological differences as sympathetic autonomic branch activity, cortisol, and catecholamine release may increase, allowing different pathologies and psychopathologies, such as anxiety and stress (Clemente-Suárez et al., 2020). Previous researches found how confinement produce altered immune functions paralleled by changes in increasing stress hormone levels, being dependent to the specific characteristics of the confined environment (Strewe et al., 2015). Beside this psychological level evaluated stress, moods state fluctuations and perception of fatigue were also found (Basner et al., 2014). A recent review highlights the importance of providing effective a rapid information for people in quarantine (in addition to medical supplies) (Brooks et al., 2020). They also suggested that the confinement period should be short, and the duration should not be changed unless in extreme circumstances (Brooks et al., 2020).

One of the populations that could suffer more the confinement are athletes, especially for the known athletes. Their daily routines in where primary outdoor activities counteract with the current situation of home confinement. This fact could be a source of loss of performance adaptions, limiting the acquisition of new abilities as well as limiting their performance improvements. Within this group, the Olympic and Paralympic athletes suffer an even more eliciting situation, since they have been preparing the Tokyo Olympic for four years and their postponement is a more added stressor. This setback and the threat of the Coronavirus disease

can cause the athlete to lose their concentration, stress, training motivation and the desire to continue preparing for the Olympiad with the same energy as he did up until then. the perception of threat of this virus, the psychological profile of the athlete, as well as their psychological skills (Belinchon-deMiguel and Clemente-Suárez, 2018).

2.4 **Major long distance competitions Ethiopia Athletes participate before COVID-19 lockdown**

2.4.1 Local

- U 20 Ethiopian Athletics champion ship
- Half Marathon Ethiopian champion
- Mixed relay two female and two male for marathon
- Abebe Bikila race marathon
- 30 km road race
- International cross country
- Ethiopian Great run
- Ethiopian Athletics champion ship

Source: EAF competition calendar 2020&2021

International

- African U 20 Athletics champion ship
- African Athletics champion ship
- African cross country champion ship
- Half marathon African champion ship
- World U 20 Athletics champion ship
- World cross country Athletics champion ship
- World Athletics champion ship
- World indoor Athletics champion ship

- World Athletics diamond league
- World Athletics half marathon champion ship

(https://www.worldathletics.org/competition/calendar)

2.4 Major long distance competitions Ethiopia Athletes participate during/after COVID-19

2.5.1 Local

- Half Marathon Ethiopian champion
- Mixed relay two female and two male for marathon
- Abebe Bikila race marathon
- 30 km road race
- International cross country
- Ethiopian Great run

Source: EAF competition calendar 2020&2021

International

- World indoor Athletics champion ship
- World Athletics diamond league
- World Athletics half marathon championship

(https://www.worldathletics.org/competition/calendar)

2.5 Cross country

Cross country running is a sport in athletics discipline in which teams and individuals run a race on open-air courses over natural terrain areas such as dirt or grass.Sometimes the runners are referred to as harriers. https://en.wikipedia.org/wiki/

The course, typically covers 4 up to 12 kilometres long, may include surfaces of grass and earth, pass through woodlands and open country, and include hills, flat ground and sometimes gravel road. It is both an individual and a team in athletics sport; runners are judged on individual times and teams by a points-scoring method. Both men and women of all ages categorized compete in cross country running, which usually takes place by athletics federations, and can include weather conditions of rain, sleet, snow or hail, mud and a wide range of temperatures.

2.6 Coaching approaches and athletic performance

Testing Sport performance Sport performance testing includes physical performance and psychological primarily on the athlete. Such tests provides useful information on athlete's cardiovascular fitness, muscular endurance, muscular flexibility, muscular strength, body composition, co - ordination, power balance, speed, agility, strength, heart and lung capacities, blood chemistry and nutrition. These variables have scientific implication to athletes' performance as such need scientific approach to appraise. There always exists a positive relationship between sport physiology testing and performance enhancement (Meyer & Texas, 2000). Sport is characterized with a competitive edge and to be a successful competitor, the coach must select, administer, analyse and interpret tests specific to individual athlete, that is principles of individuality differences, the sport and position (Muller, Benko, Raschner, & Schwameder ,2000). Sport is characterized with a competitive edge and to be a successful competitor, the coach must select, administer, analyze and

interpret tests specific to individual athlete, sport and position (Muller, Benko, Raschner, & Schwameder ,2000).

From the biomechanical aspect coaching point of view, good number of athletic movements can be assessed digitally in the practical field (indoor, outdoor and under water). Computerized movements give the coach opportunity to analyse how sport accidents occur and how sport trauma can be minimized (Koutedakis,1995). A coach can enjoy greater benefit from biomechanical coaching point of view through use of movement analysis correctly, how to run faster or farther and it can create a road map for athletic training. In the same way a number of great coaches have successfully analysed numerous sport skills in soccer, basketball hockey, golf, rowing, skating, archery, swimming just to mention but few. (Vanden, De cuper & Van moleBewnicki, 1993; Van Mechelen, Twist, Molendjik, Blom, Snel & Kemper, 1996).

2.6.1 The roles of coaches' in athletics

Defining coaching athletics has received much attention in the literature with no consensus about a common definition evident winning is an aspect of successful coaching but successful coaching is much more than just winning games or competations. (Côté, Salmela, Trudel, Baria & Russell, 1995; Fairs, 1987; Jones & Wallace, 2005; Knowles, Borrie & Telfer, 2005; Launder, 1994; Lyle, 2002; Parsloe, 1999; Saury & Durand, 1998; Webster, 1938). Coaching athletics is a process of learning and development to facilitate improvement of an athlete's peak performance successful coaches help athletes to master new skills , enjoy competing with others , and feel good them . (Fairs, 1987; Lyle, 2002; Parsloe, 1999; Schempp, Webster, McCullick, Busch & Sannen Mason, 2007; Webster, 1938). Great coaches like John Wooden, Vince Lombardi, and Phil Jackson get the most out of their athletes, their staff , coaches and the resources around them.

Coaching can be defined as a collaborative helping relationship, sport scientists had made theoretical contributions to training knowledge, they have been less ready to apply their work to coaching, where coach and coaches' engage in a systematic process of proper setting goals and developing solutions with the aim of facilitating goal attainment, self-coaching, and personal growth of the coaches (Grant and Stober, 2006; Grant, 2013b). The coaches responsibility is to implement action steps to achieve defined goals, while the coach keeps on the track by managing the complex goal attainment process (Grant, 2013b). The coach's function includes making explicit the difference between coaching and other forms of interventions (e.g., psychotherapy or expert counselling).

The main requirements, concerning the role of the athletics coach in the following different parameters, which are rather important if we would like to characterize the role of the athletics coach in the process of training, teaching and education. But there is a really important, highly dominant factor, which is absolutely essential and typical for the good and successful coach. This is the ability to have a strong impact on, the audience, on the competitors, players, on the team. With other words the coach has to have a charismatic personality! If the coach does not have this peculiarity, he/she will be never really accepted and acknowledged by the athletes. Of course the coaches should always consider their-own and competitors (athletes, players) limits! So, let us see the chosen parameters.

Physical abilities : The good coach's is sometimes a demonstrator, as well. If necessary, the coach should be able to show how to make e.g. a deep snatch or a dynamic shot-put. If the coach is fit and was a former competitor (it is not necessary to be a former top athlete) it is not too difficult to fulfill this simple requirement. But coaching without own experience as a competitor it is really difficult to train, or almost impossible. How to speak about the technique of butterfly stroke swimming if the coach cannot swim? How to speak about the

biomechanics of triple-jump, pole-vault if the coach cannot perform a hop-step-Jump exercise? La84 foundation (2012).

Ability to transfer the knowledge: A good coach has the ability to transfer his/her knowledge to the pupils, or the athletes. It means the coach has to have good communication skill, voice, enthusiasm, even sense of humor. The explanations should be always true and useful, but also interesting and not too long. Not only silent demonstration is necessary, but demonstration with instruction (verbal information) using voice with appropriate speed and volume. In case of teaching young athletes, beginners the use of anatomical terms, scientific language and other technical terms should be avoided, keeping description brief is important. E.g. if we teach the movement "press from behind the neck" a description such as following should be definitely avoided (Jones at al., 2010): „This progressive resistance exercise is termed the press from behind the neck. It stimulates development of the deltoids, trapezius and around outer head of the triceps. We are learning it not only as a method of increasing the force production and hypertrophy of these muscle groups, but also as a method of ensuring strength and confidence in the receiving position in the second phase of the second classical lift." This explanation is good on the conference, concerning biomechanics running, anatomy or exercise physiology or on coaching seminar for specialists in lifting, but not well for beginners. Sufficient information can be given by saying: "This lift is called the press from behind the neck. It strengthens the arms and shoulders for the jerk."

Ability to manage different age groups: There are coaches who are specialized for young athletes (e.g. in sprinting even for youth!), and others for adults for a rather long period. But sometimes they have a change, and coaches of the selected teams (e.g. adult top athletes) will work later with beginners. This is completely other matrix, other requirement, and therefore we need completely other management, behavior, treatment, as well! A good coach is in the same time a good psychologist, having the capability to understand the athletes belonging to

different age groups. Of course the coach must not only understand but also successfully manage the competitors of different age groups and not only during the training, but also in stressful situation (e.g. competition situation, during meal, after defeat), as well Pedagogy.(Marcone , 2017).

Motivation: According to Mageau & Vallerand.,(2003). A good coach is motivated. The motivation can be based on moral and material acknowledgement. The intrinsic or Extrinsic motivation both are necessary. Without stabile (acceptable) financial background the coach is not in the position to do his/her best as a coach for the athletes. Some times coaches had the motivation to be successful but not the same time. Or rather they do not have sufficient motivation to make the time for doing what is necessary to be a successful coach's.

Outlook, appearance: Baker et al., (2000) described that do not think that this parameter is negligible. The coach should be handsomely, good looking, nice, charming, having good appearance, having good coaching eye and a necessary level of personal hygiene. An uncared-for coach is a very bad pattern for the young athletes. Good health, healthy lifestyle, refusal of harmful habits is also important expectations. Smoking cigarette, alcohol-dependence, drug abuse or e.g. a very big stomach, obesity is also not the pattern, what the competitors have to copy.

2.6 **Training and Detraining in long distance events**

Training during home confinement will typically be limited to strength, power, and muscle endurance exercises, flexibility in general physical preparation (e.g., aerobic training on a cycle ergometer), and stretching, amongst other isolation-limited activities. Acute responses to vigorous intensities exercises and volumes of exercise can involve a greater risk of illness and impaired immune system . (Puta, C.; Gabriel, B & Gabriel, H 2016). According to (Toresdahl, BG and Asif 2020). Advise athletes to follow a conservative approach, limiting training sessions.

The full spectrum of muscle fibers (types I and II: slow and fast-twitch fibers, respectively) should be activated when training sport activities. (Behm, D.G 2011). While maximal and near-maximal resistance or maximal explosive power actions are often considered necessary to activate the high threshold, type II (fast-twitch) fibers , (Behm, D.G 2011). Type II fibers can also be recruited when submaximal intensity loads are repeated until task failure or near task failure and Force maintenance with submaximal fatiguing contractions. (Can. J. Appl. Physiol. 2004) . Thus, if access to resistance training materials are limited, the use of body mass exercises such as push-ups, sit ups (Alizadeh, S.; Machel Rayner, M & Behm, D.G 2020). Chin-ups (pull-ups), lunges and unilateral squats, (Behm, D.G & Power, K 2003) and other exercises can ensure full activation when performed to task failure. (Alizadeh 2020). Performed correlations between push-up and bench press repetitions and found that with each female push-up, it was predicted that they would be able to perform 0.362 bench press repetitions. For each push-up repetition performed by males, it was predicted they could perform 0.973 bench press repetitions. Thus, if 10 standard push-ups (from the toes) are performed, it is predicted that approximately 3 to 4 and 9 to 10 bench press repetitions would be performed by women and men, respectively. These predictions would be helpful for

athletes in tracking their performance progress and their eventual return to full equipment availability.

Detraining can be defined as the partial or complete reversal of previously developed training reduction or cessation. (Jukic I, Calleja-González J, Cos F, Cuzzolin F, Olmo J & Terrados N 2020).

CHAPTER THREE

RESEARCH MTHODOLOGY

3.1 Research Design

This study applied the descriptive - comparative research design. The study didn't manipulate athletes in both groups.

3.2 Target population

The target population of the study were all national and international level long distance athletes whose mobility was restricted since March to November 2020.

3.3 Study participants

The cross country results of 320 individual athletes who ranked in the top 40 were used for data analysis. Of these athletes 160 were female and the rest 160 were male athletes. When their representation is assessed 218 were club athletes and the rest (102) athletes represented regions.

Table 3. 1 Athletes' club and region distribution

Sex	Events	2020		2021		Total
		8km	10km	8km	10km	
Male	Athletes from regions	10	11	15	7	43
	Athletes from clubs	30	29	25	33	117
	Total	40	40	40	40	160
Female	Event	6km	10km	6km	10km	
	Athletes from regions	17	10	17	15	59
	Athletes from clubs	23	30	23	25	101
	Total	40	40	40	40	160

3.4 Samples and sampling techniques

From the total competition participants (786) 320 samples' time to cover 6km (F), 10km(F), 8km(M) and 10km(M) was taken. From each event the best 40 participants' time was taken for comparison. Samples were selected using convenient sampling technique.

Table 3. 2 proportion of sample results from the total race participants

	2020		2021	
	No.	% From the total	No.	% From the total
Male	80	28.9	80	33.8
Female	80	58.4	80	61.15

3.5 Sources of Data

Both primary and secondary data sources were used. The primary data source was used to obtain all the necessary data particularly the demographic characteristics and telephone interviewer.

3.6 Data collection instruments

Document analysis was the predominant data collection instrument used in this study.

3.7 Data analysis

In this study both descriptive and inferential data analysis the data analysed and presented using descriptive statistics (Mean and Standard Deviation). Independent sample t-test was the data analysis method used to compare the mean of the athletes in each cross country events in the 2020 and 2021 cross country championships.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the Ethiopian athletes who participated in 2020 and 2021 cross country championships. For the sake of this study the 37th cross country championship which was held in January 26, 2020 is considered as the championship before training interruption due to the COVID-19 pandemic. Whereas, the 38th cross country championship which was held in Sunday, January 31, 2021 is considered as the championship after training restriction was lifted starting from October 2020. Thus, in this study the top 40 finishers in the male and female race categories are used for analyses and comparisons.

4.1 Results

4.1.1 Participants

Race participants and their final status

In the 37th Jan-Meda international cross championship a total of 414 athletes (277 male and 137 female) were participated. From the total participants 17 athletes (13 male and 4 female) didn't finish the races. Whereas, in the 38th cross country championship a total of 376 (male = 237 and female = 139) took part in the championship. From these (376) participants 13 (male = 11 and female = 2) athletes didn't finish the races in which they registered. In comparison to the 37th (2020) championship the number of participants decreased by 38 athletes in the 38th (2021) championship. In general, the percentage of athletes who finished in the top 40 across the races are presented in the following table (Table 4.1).

Descriptive data

Based on the 37th and 38th cross country champion results the mean and standard deviation analyses are identified. The following table (Table 4.1) shows the mean and standard deviation of the 6km time of the two championships.

Table 4. 1 Female 6km time

	Event type	N	Mean	SD
Time covered the distance (sec.)	6km 2020	40	1342.1	29.14
	6km 2021	40	1270.6	21.74

The data in table 4.1 reveals the mean and standard deviation of the top 40 female 6km cross country participants. As can be seen from the data during the 2020 6km cross country races the top 40 athletes mean time to cover the distance was 1342.1 sec. (SD=21.74). Whereas, the mean time to cover the 6km in the 2021 cross country championship which was held at Sululta was 1270.6 sec. From these raw data one can understand that the mean of the top 40 athletes time is faster (2021) than the 2020's time.

Table 4. 2 Female 10km time

	Event type	N	Mean	SD
Time covered the distance (sec.)	10km 2020	40	1924.3	29.70
	10km 2021	40	1876.3	31.86

Table 4.2 reveals the descriptive statistical analysis (Mean and SD) results of the athletes who participated in the 2020 and 2021 championships. Based on the results the mean time of the top 40 athletes who participated in the 10km race was faster in the 2021 championship although the average amount of variability in the performance of the athletes in the 2021 race was higher than the 2020 race.

Table 4. 3 Male 8km time

	Event type	N	Mean	SD
Time covered the distance(sec.)	8km 2020	40	1528.8	20.94
	8km 2021	40	1483.0	24.58

In this study the mean and standard deviation of the young male athletes who participated in the 2020 and 2021 analysed. Based on the analysis result (Table 4.3) during the 2021 championship like the 6km female cross-country participants the top 40 male athletes' mean time for the 8km was faster but more varied as compared to the 2020 race.

Table 4. 4 Male 10km

	Event type	N	Mean	SD
Time covered the distance(sec.)	10km 2020	40	1924.3	29.70
	10km 2021	40	1876.3	31.86

As the descriptive analysis results in table 4.4 reveals the mean time that the top 40 athletes covered during the 2020 (37th) and 2021 (38th) cross-country championship. In this race in the same way as the above three events (6km and 10km female as well as 8km male races), the 2021 race participants covered the distance (10km) with lower (faster) time than the 2020 participants.

Performance variation in rank categories

The intention of this analysis is to see the degree of variation in the performance of the athletes who participated in the 2020 and 2021 international cross-country championships of the top 40 athletes in the four ranking categories (i.e., 1st -10th , 11th – 20th, 21st – 30th and from 31st – 40th).

Table 4. 5 Female 6km

		2020	2021
Rank	Descriptive	Time (sec.ms)	Time (sec.ms)
1st - 10th	Mean	1301.8	1240.2
	SD	8.18	10.65
11th - 20th	Mean	1336.4	1266.9
	SD	8.71	4.97
21st - 30th	Mean	1352.2	1278.8
	SD	6.35	3.15
31st - 40th	Mean	1378.0	1296.4
	SD	10.6	6.48

Source: EAF (2020 and 2021)

Although more than 48 athletes were participated in each race categories the performance differences of the top 40 athletes in every 10 ranks were analysed. As the descriptive analysis

results reveal during the 6km race performance higher race performance differences in athletes who ranked between 11^{th} -20^{th} (4.97), 21^{st} – 30^{th} and 31^{st} -40^{th} positions in the 2020 championship than the 2021. Whereas, higher difference in race performance was recorded in the 2021 championship than the 2020 championship among top 10 positions.

Table 4. 6 Female 10km

Event 10 km		2020	2021
Rank	Descriptive	Time (sec.ms)	Time (sec.ms)
1^{st} - 10^{th}	Mean	2146.6	2101.7
	SD	23.99	11.79
11^{th} - 20^{th}	Mean	2209.5	2148.4
	SD	20.18	9.39
21^{st} - 30^{th}	Mean	2271.0	2182.8
	SD	18.8	30.4
31^{st} - 40^{th}	Mean	2337.9	2241.7
	SD	23.04	24.76

Source: EAF (2020 and 2021)

As the data in table 4.6 shows in all ranking categories the mean athletes' time to cover the 10km race performance was faster in the 2021 female 10km race than the 2020. As far as the performance differences of each athlete from the mean time achieved less variability was reported in athletes in the first (1^{st} -10^{th}) and second (11^{th} -20^{th}) ten rankings during the 2021 championship even though less varied results reported in the third and fourth ranking categories of athletes who took part in the 2020 championship.

Table 4. 7 Male 8km

Male - 8km		2020	2021
Rank categories	Descriptive	Time (sec.ms)	Time (sec.ms)
1st - 10th	Mean	1499.3	1449.0
	SD	10.09	5.96
11th - 20th	Mean	1523.9	1475.0
	SD	6.43	11.26
21st - 30th	Mean	1540.2	1498.0
	SD	3.76	4.75
31st - 40th	Mean	1552.0	1510.1
	SD	2.75	3.30

Source: EAF (2020 and 2021)

In comparison to the 2020 championship in 2021 better time in the 8km cross-country championship was reported by the athletes in all four rank categories (Table 4.7). Even though athletes who participated in the 2021 cross-country championship achieved better results in the four categories less deviation from the mean was reported in the 1st -10th of 2021, in the 11th -20th of 2020, in the 21st -30th of 2020 and 31st - 40th of 2020 championship.

Table 4. 8 Male 10km

		2020	2021
Rank	Time (sec.ms)	Time (sec.ms)	Time (sec.ms)
1st - 10th	Mean	1882.5	1830.4
	SD	14.70	13.59
11th - 20th	Mean	1917.3	1870.3
	SD	8.52	11.34
21st - 30th	Mean	1939.9	1893.9
	SD	6.00	6.28
31st - 40th	Mean	1957.5	1910.4
	SD	3.83	5.63

Source: EAF (2020 and 2021)

The data in table 4.8 depicts the average race performance and the performance deviation in in the four rank groups. As compared to the 2020 championship male athletes who participated in the 2021 10km cross-country championship covered the race distance (10km) with fastest time in all rank categories although in all the four categories higher deviation in race performance were reported.

Test of difference

The major objective of this study was to compare the cross-country performance of Ethiopian athletes in the 6km, 8km and 10km races before and after the training interruption because of COVID-19 (2020 Vs 2021). In this section the independent sample t-test analyses are presented to see the performance differences in four cross-country races.

Table 4. 9 Independent Samples Test for 6km (Female)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Time covered the distance	Equal variances assumed	3.04	0.08	12.4	78	0.000	71.5	5.75	60.10	83.0
	Equal variances not assumed			12.4	72.1	0.000	71.5	5.74	60.09	83.0

The 6km top female athletes who participated in the 2020 and 2021 cross-country championship were compared. Based on the independent sample t-test results there was significant performance difference ($p<0.005$) between the top 40 female athletes who participated in the 2020 (37^{th}) and 2021(38^{th}) Jan Meda International cross-country championship. As the mean times in all the four rank categories reveals the female athletes who took part in the 2021 cross-country championship ran the distance faster (Table 4.5) than the 2020 athletes.

Table 4. 10 Independent Samples Test for 10km (Female)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Time covered the distance	Equal variances assumed	4.5	0.036	4.9	78	0.000	72.6	14.7	43.2	101.95
	Equal variances not assumed			4.9	71.9	0.000	72.6	14.7	43.2	101.9

Table 4.10 illustrates the independent sample t-test results of female athletes who participated in the two consecutive cross-country competitions (2020 and 2021). Like the female 6km cross-country championships that were conducted in 2020 and 2021 there was no statistically significant performance difference ($p<0.05$) was reported between the two 10km races (Table 4.10). When the 2020 mean 10km time of the top 40 female athlete finishers are compared with the 2021 better time was reported in the all the four rank categories (Table 4.6).

Table 4. 11 Independent Samples Test for 8km (Male)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Time covered the distance	Equal variances assumed	2.916	0.092	8.9	78	0.000	45.8	5.1	35.6	55.9
	Equal variances not assumed			8.9	76.1	0.000	45.8	5.1	35.6	55.9

Like the female categories the Jan-Meda international cross-country championship staged two event categories in the 2020 and 2021 competition years - the 8km and 10km races. The performance differences of the top 40 finishers who participated in the 2020 and 2021 championships were tested using the independent sample t-test. As the statistical analysis result revealed (Table 4.11) there was significant difference in their mean time to cover the 8km. In the 2021 championship the top 40 athletes who competed in the 8km race covered the distance with a mean time of 1483 (24.58) seconds as compared to the 2020 1528.8(20.94) seconds. In mean time of the top 40 athletes in the four rank categories also supports this finding that in all the categories (1^{st} -10^{th}, 11^{th} -20^{th}, 21^{st} -30^{th} and 31-40^{th}) the athletes in the 2021 championship covered the race distance with faster time.

Table 4. 12 Independent Samples Test for 10km (Male)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Time covered the distance	Equal variances assumed	0.30	0.58	6.9	78	0.000	48.04	6.89	34.3	61.75
	Equal variances not assumed			6.9	77.6	0.000	48.04	6.89	34.3	61.76

Table 4.12 depicts the independent sample t-test results of the top 40 male 10km cross country championship finishers. The mean difference between the athlete who competed in the 2020 and 2021 10km races was analysed. Based on the results of the analysis statistically significant difference ($p<0.05$) was reported between the mean performance (the 10km time to cover the distance) of the male athletes who participated in the two competition years (2020 and 2021). As the descriptive data in table 4.4 reveals in the 2021 cross-country championship the top 40 athletes' mean time (1876.3 sec.) to cover the race distance (10km) was better than the 2020 (1924.3 sec.). In addition to the overall (top 40 finishers) mean time of the athletes in the two championships the mean time of the athletes in the four ranking categories was also analysed and the results of the analysis revealed in all the four categories the performance of the athletes were by far better during the 2021 championship (Table 4.8).

Interview

Club representative responses regarding the services that had been rendered and then interrupted are presented below.

Services rendered before COVID-19 pandemic

Usually in Ethiopia context in terms of club organization and functioning different forms of club establishments had been implemented. Club ownership in the country takes different forms. In terms of club establishment the majority of the country's athletics clubs are established by public/government organizations. There are also some athletics clubs established by public enterprises like Ethiopia Nigd Bank, Ethio-electric, Wuha Sirawoch etc. Whereas, there are very few private athletics clubs in the country run under the financial support from business firms.

Although these clubs differ in their financial sources and administrative matters the services they provide take uniformity. There are some athletics clubs, sport academies and training centres that provide different services (full accommodation) while the athletes are in-campus. Amongst the many services that these athletics clubs basically provide meal, accommodation, transportation, coaching (technical support), medication, massage and physiotherapy treatments, training facilities and others. In addition to the above service provision significant number of athletics clubs has been providing partial services like:

- coaching/technical services, meal and training facilities, massage and physiotherapy services;
- coaching/technical services, meal and training facilities and accommodation;
- coaching/technical services, meal and training facilities;
- coaching/technical and meal services;
- coaching/technical services and training facilities;
- only coaching/technical services;

Moreover, there are some athletics clubs that were established at the region level by selecting potential athletes from private and government owned clubs to take part in different national competitions like the Jan-Meda international cross-country championship. Unlike the above permanent clubs these types of clubs (temporarily established clubs) receive different technical and administrative services for a short period of time (pre- and during competition weeks) on a temporary basis.

Following the athletic training restriction imposed by the government since March 24, 2020 due to the COVID-19 pandemic almost all athletics clubs in the country discharged their athletes to return to their home. The decision made by the government to control the spread of the disease has put an impact on the day to day athletic trainings of the athletes. When the clubs/training campus closed for a continuous of seven months athletes were not able to get the technical support and administrative services they used before.

Service interruption

Based on the information received from 30 officially registered athletics clubs that involved in the 37th and 38th international cross-country championships only three clubs had been providing in-campus services during the shutdown (training interruption). Thus, 90% (27 clubs) of the clubs that took part in the 37th and 38th cross-country championships closed their camps and sent athletes to their home following the decision made by the government in March 2020.

In comparison to the supports that athletes were receiving from their clubs in the pre COVID-19 interruption, during the shut-down (interruption) they were facing the following problems in the area of technical and administrative services. These problems are summarized below.

- Inconsistent communication with the coaches;
- Lack of training facilities and problem for accessing the existing facilities;
- Lack of balanced meal and
- Lack of motivation
- Lack of knowledge in skill for managing load/load maintenance;
- Problem to get reliable information regarding the training and competition schedule;

Athletics Clubs and their activities

Currently a total 53 athletics clubs are registered under national Federation (Ethiopia Athletics Federation). Based on the information received from the EAF the majority of the athletics clubs in the country have actively involved in middle and long distance events. Before the COVID-19 pandemic there were 8 officially recognized competitions in the country run under the national federation. Following the pandemic the majority of the competitions were cancelled and athletes were not able to plan and train accordingly. Especially during the 2019/20 (2012 EC) competition calendar the federation organized only…competition from the total completions planned in the calendar. In contrary to the

2019/20 competition calendar the federation has organized 6 competitions in 2020/2021 (2013E.C) calendar.

Most athletes and coaches agree that competition is the heart of athletics training. All in all athletes take competition as their compass to set their performance goals and design their long and short-term training plan. Based on the information received from the athletes and the coaches the situation following the government put its orders in action to stop any sport related activities from March 24, 2020 to the lifting of the ban was a very difficult times that the athletes had been facing. In relation to the challenges that the athletes facing during the 2019/20 competition calendars the responses are summarized in the following way.

- Athletes were not able to follow the training periodization due to the uncertainty they had about the local and international competition calendar.
- Athletes were not motivated to prepare mentally and physically due to lack of competitions;
- Athletes lack confidence on how to run their day to day trainings since the coaching approach used before the training interruption had forced the athletes to depend on the coaches.
- Athletes were challenged due to interruption of very important services like accommodation (meal and room services), training facilities, transportation, medication and general coaching environment.
- Of all the athletes were not in the usual training mode and environment and the situation was the first in its type that it was not practiced in the country before.

Altitude

In addition to the training and service related challenges that the athletes faced during the 2019/2020 competition calendar there was also a shift in the competition venue in the 2020/21 cross country championship. During the 38th Jan-Meda International Cross-country championship all the four races, i.e., 6km and 10km (female races) as well as 8km and 10km (male races) took place at Sululta with an average elevation of 2609m above sea level. In the history of the Ethiopia International Cross-country championship the vast majority of the championships were conducted at an average altitude of 2478m above sea level. Although clear elevation differences (131m) are observed between the two competition venues.

Jan-Meda (37th)

Sululta (38th)

Altitude-based studies have identified changes in performance due to altitude changes (Hamlin et al., 2015); and event-specific performance changes due to increases in altitude (Hamlin et al., 2015).

A 4% decrease in running speed at 1800m, as compared to sea level, was measured; with a 1% decrease in $\dot{V}O_2$ Max for every 305m increase in altitude (Niess et al., 2003).

In the past different research findings (Hamlin et al., 2015) confirmed the effects of altitude on endurance performance. As studies specifically focused on long distance events reported performance differences were identified in events above 800m. As these studies (Kayser, 2005) reported when athletes train and/or compete at altitudes above 1500m a ~ 1% 1change in performance was seen at every 100m increment. In the current study a better performances were reported in all races although a bit higher change in altitude is seen at the 38th cross-country championship. When the elevation at the two competition venues compared the difference is very small and no significant performance change is expected due to this elevation difference.

4.2 Discussion

There were six basic research questions in this study. The study tried to answer these research questions based on the study results and the existing research findings. The major findings of the current study are presented and discussed based on the basic research question.

In relation to the cross-country championship performance differences the study identified significant performance differences between the 2019/20 and 2020/21 in the four race categories. In all the races athletes who finished first, who stood from 1st -10th positions and in the average top 40 athletes better race performance was reported. In the 6km – female, 10km - female, 8km – male and 10km - female races a 66.99 sec., 18.07sec., 40.35sec. and 48.7 seconds improvement reported respectively. In addition to the first finishers, top ten performers and top 40 finishers the performance differences in every 10 rank categories revealed better race performance by the 2020/21 participants. Although different justifications have been forwarded regarding the challenges that athletes in different countries facing during the lock-down frequent performance improvement have been reported following the shut-down was lifted and international competitions resumed (November). Since October 2020 almost 18 records were improved of these 11 of the records were achieved in 2021 (World Athletics, 2021).

As professionals in the area of athletics noted at the international level the last 15 months were considered as the very challenging months for athletes and coaches in athletics. These times are special for all the sport community since the time was very long that most athletes and coaches were separated the tradition/the usual way of training and coaching. As studies (Tayech Amel et al., 2020) that focused on this issue revealed the athletes were experiencing social, psychological and emotional challenges. Athletes, especially middle and long distance

athletes, in Ethiopia also reported more or less the same challenges as other international athletes reported. The challenges that our long distance athletes faced during the COVID-19 pandemic was in line with the other international athletes were faced.

Table 4. 13 Athletics events improved in 2020 and 2021

Records in 202 and 2021				
Event	Competitor	Performance	Venue	Time
5000m	Letesenbet Gidey	14:06.62	Estadio de Atletismo del Turia, Valencia (Spain)	07 October 2020
5KM	Beatrice Chpkoech	14:43	MONACO (France)	14 February 2021
5km	Karoline Bjerkeli	14:39	Maarud Gard (NOR)	01 May 2021
One Hour run	Sifan Hassan		Boudewijnstadion, Bruxelles (Belgium)	04 SEP 2020
Half-Marathon	Peres Jepchirchir	1:05:34	Praha (CZE)	05Sep, 2020
Half-Marathon	Peres Jepchirchir	1:05:16	Gdynia (POL)	17 October 2020
Half-Marathon	Ruth Chepngetich	1:04:02	Istanbul(TUR)	04 April 2021
20km race walk	Jiayu Yang	1:23:49	Huangshan(CHINA)	20 March 2021
1500m	Gudaf Tsegay	3:53.09	Arena Stade Couvert, Lievin (FRA)	09 February 2021
Triple jump	Hugues Fabrice Zango	18.07M	Stadium Jean-Pellez, Aubiere (FRA)	16 January 2021
One hour	Mo Farah		Bpudewijnstadion, Bruxelles (BEL)	04 September 2020
Half marathon	Kibiwott Kandie	57:32	Valencia (ESP)	06 December
60m hurdle	Grant Holloway	7.29	Gallur , Madrid (ESP)	24 February 2021
Triple jump	Hugues Tamgho	18.07	Stadium Jean-Pellez, Aubiere(FRA)	16 January 2021
Shot put	Ryan Crouser	22.82	Randal Tyson indoor centre, Fayetteville, AR(USA)	24 January 2021
10000m	Sifan Hassan	29:06.82	Henglo (Netherlands)	06 June 2021
10000m	Letesenbet Gidey	29:01.03	Henglo (Netherlands)	08 June 2021

Source: World Athletics, 2021

The spread of COVID-19 and the measures taken by the governments have forced the relocation, interruption, partial or total cancellation of an endless list of sports competitions since January 2020 (Pena, Javier et al., 2020).

Since then, virtually all sports leagues and competitions around the globe have suffered the impact of the SARS-CoV-2 in one way or another.

The majority of the athletes who were under the club training scheme reported lack of training or reduction in load of training as one of their problem during the training interruption. As studies (Jukic, Igor et al, 2020) revealed detraining is one of the biggest negative consequences of the forced quarantine.

In this study the performance variation of the top 40 finishers at every 10 rank categories was analysed. The analysis focused on the deviation of the time covered by the athletes from the mean time in each category. To check the deviation from the mean the analysis used a descriptive statistics (standard deviation). As the results of the analysis indicated, in comparison to the 2020 championship, less deviation was observed in inter athlete performance in the 1st, 2nd, 3rd, 4th rank categories of the 2021 championship. In order to reach to a conclusion the cross-country performance of some selected African Countries of the same age categories and race distances are used as a reference.

Table 4. 14 Descriptive data of the 2021 Ethiopia cross-country championship results in rank categories

Rank Categories	Time in Seconds	Female 6km	Male 8km	Female 10km	Male 10km
1st - 10th	Average	1240.2	1449.0	2101.7	1830.4
	SD	10.65	5.96	11.79	13.59
11th - 20th	Average	1266.9	1475.0	2148.4	1870.3
	SD	4.97	11.26	9.39	11.34
21st - 30th	Average	1278.8	1498.0	2182.8	1893.9
	SD	3.15	4.75	30.4	6.28
31st - 40th	Average	1296.4	1510.1	2241.7	1910.4
	SD	6.48	3.30	24.76	5.63

Table 4. 15: Descriptive data of the 2021 Kenya LOTTO National Cross-Country Championship results in rank categories

Rank Categories	Time in Seconds	Female 6km	Male 8km	Female 10km	Male 10km
1st - 10th	Average	1303.0	1525.9	2130.5	1879.2
	SD	26.9	20.7	29.9	11.9
11th - 20th	Average	1350.0	1562.5	2190.9	1917.8
	SD	11.7	7.9	12.4	11.8
21st - 30th	Average	1402.7	1582.1	2234.8	1942.5
	SD	22.4	7.0	14.1	4.3
31st - 40th	Average	1463.4	1608.7	2269.6	1955.0
	SD	24.3	11.3	9.2	4.2

(Source: run2gether, 2021)

Table 4. 16 Descriptive data of the 2021 Uganda National Cross-Country Championship results in rank categories

Rank Categories	Time in Seconds	Female 6km	Male 8km	Female 10km	Male 10km
1st - 10th	Average	1285.3	1448.8	2069.5	1772.2
	SD	39.3	25.9	41.7	14.1
11th - 20th	Average	1374.1	1509.6	2221.9	1815.3
	SD	32.4	9.6	56.0	11.8
21st - 30th	Average	1558.2	1533.0	2429.2	1858.3
	SD	150.9	5.5	74.8	15.1
31st - 40th	Average	--	1552.3		1896.6
	SD	--	7.5		5.6

*(*Source: Africa Athletics United, 2021)

Table 4. 17 Descriptive data of the 2021 Algeria National Cross-Country Championship results in rank categories

Rank Categories	Time in Seconds	Female 6km	Male 8km	Female 10km	Male 10km
1st - 10th	Average	1101.4	1452.3	2189.2	1729.2
	SD	20.5	33.4	124.5	35.0
11th - 20th	Average	1142.6	1526.5	2515.8	1798.0
	SD	6.2	16.6	70.4	14.1
21st - 30th	Average	1166.5	1565.3	2725.4	1847.8
	SD	8.2	10.5	71.0	13.1
31st - 40th	Average	1186.1	1599.0	2994.8	1891.6
	SD	3.9	10.8	102.2	15.3

*(*Source: Africa Athletics United, 2021)

The performance of the Ethiopian cross country athletes who took part in the 2021 championship was referred and discussed with similar championships and events of three different African countries (Kenya, Uganda and Algeria). Following the re-opening of the interrupted trainings in the country, significant performance improvements have been reported during the 2021(2013 E.C) championship as compared with the 2020 (2012 E.C). As the average performance in all the 6km and 10km (female) and 8km and 10km (male) indicate Ethiopian athletes (who stood first and in all average rank categories) achieved better results. However, in terms of the rank categories relatively lower inter athletes' performance difference (rank categories) was observed in Ethiopian athletes as compared to the races (6km - F, 8km – M, 10km – M and 10km –F) that took place in Kenya, Uganda and Algeria although the races were conducted in venues with significant altitude differences (Algeria – 200m a.s.l, Uganda – 1278 a.s.l, and Kenya – 2100m a.s.l). The findings in the current study revealed the competition venue where the local championship (2020) as well as the venues where the 2021 national cross country championships conducted in the three Africa Nations (Kenya, Uganda and Algeria) were above and below the 2021 championship respectively. In the 2021 the 37th cross country championship was conducted at Sululta (2609m a.s.l) whereas in the 2020 it was conducted at 2478m a.s.l, The altitude of the competition venues of the 2021 cross country championships in the three African countries were 200m (Tizi Ouzou – Algeria), 1278m (Tororo town – Uganda) and 1800m (Ngong Racecourse – Kemya). Although current evidences (Wehrlin and Hallén, 2006) reported a negative change in endurance performance due to increments in elevation (altitude), in the 2021 championship the top 40 Ethiopian athletes who took part in the competition achieved better results in both female races (6km and 10km) and male (8km and 10km). The performances achieved by Ethiopian athletes after the government lifted the training ban imposed on athletes since March 2020 is in line with results archived in 2021 by track/road athletes (World Athletics, 2021) at the international level.

In comparison to the 2020 (37th) cross-country championship Ethiopian athletes who competed in 2021 showed less inter -athletes performance variation from the mean in the last 30 (6km – female), top 20 (10km – female), top 10 and last 20 (8km – male) and top 10 (10km – male) ranks. In 2021 cross-country championship the male athletes who competed in the 8km and 10km races and female athletes in the 10km showed less inter-athlete performance variation at the top finishers rather than athletes at the bottom level. This shows that less performance difference was exhibited at best performers.

When the Ethiopian top 40 inter-athlete results are compared with the other country's result visible differences were observed. When the 2021 cross-country results of the Ethiopian athletes reviewed less inter-athlete performance variation was reported in the majority of races and rank categories of Kenyan (run2gether, 2021) , Ugandan (Africa Athletics United, 2021), and Algerian (Africa Athletics United, 2021) cross-country athletes. In the 2021 cross-country championships in all four races (6km and 10km – female and 8km and 10km – male) the Kenyan cross-country athletes showed higher performance deviation from the mean in the top 10 finishers which is in contrary to the Ethiopian athletes.

Unlike the Ethiopian and Kenyan cross-country athletes who competed in their respective 2021 cross-country championships higher performance deviations from the mean were identified in Ugandan cross-country athletes (World Athletics, 2021), When the 2021 Algerian cross-country athletes' performance deviation from the mean time in every 10 rank categories was reviewed almost similar deviation with that of the Ugandans cross-country athletes was identified (World Athletics, 2021). In Algeria higher deviation from the mean was reported in the male races as compared to the female athletes.

When the performance deviation of the top 10 finishers was analysed, less deviation was reported in Ethiopian cross-country athletes as compared to the athletes who competed in the three countries (Kenya, Uganda and Algeria) of similar races and year of competition.

Although athletes who participated in the 38^{th} (2021) Jan-meda International Cross-country championship returned to the usual training programs after seven months of official training restriction imposed by the government the overall results of the top 40 athletes was encouraging. In comparison to the 2020 cross-country championship in 2021 both male and female athletes achieved better race performances.

In comparison to the 2020 championship in the 2021 6km female race the athlete's performance showed less deviation in the last three rank categories but higher in the top ten athletes. However, in contrary to the 6km race, the female athletes' 10km performance revealed less deviation in the top two rank categories (1^{st} -10^{th} and 11^{th} -20^{th}) in the 2021 championship than the 2020. In general, in 2021 championship as the race distance increases female athletes show higher deviation in their performance from the mean race time.

Regarding the male 8km result is concerned less race performance variation was recorded in the top ten athletes during the 2021 championship. In the 2020 championship the same

performance deviation pattern was recorded in that the deviation decreases from the first rank category (1^{st} -10^{th}) to down (31^{st} - 40^{th}). In comparison to the 2020 championship in 2021 male 10km athletes show higher deviation race performance except the top ten rank categories and the deviation decreases as the rank goes from top ten to the lower rank categories both during the 2020 and 2021 championship. Thus, in 2021 more or less at the top level athletes with uniform performance level were competed in the 10km race as compared to the 2020 championship.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the major findings of the study that are derived from the statistical analyses; the conclusions drawn based on the major findings; and the possible recommendations forwarded based on the conclusions drawn.

5.1 Summary

This section presents the summary of the major findings of the study. The major findings of the study are:

- In the 37th (2020) Jan-Meda international cross championship a total of 414 athletes (277 male and 137 female) were participated. Whereas, in the 38th cross country championship a total of 376 (male = 237 and female = 139) took part in the championship.
- In the female 6km race, the top 40 athletes' mean time to cover the distance was 1342.1 (SD=29.14) and 1270.6(21.74) sec., in the 2020 and 2021 championships respectively.
- The mean time of the top 40 female athletes to cover the 10km race in the 2020 and 2021 were 1924.3(29.7) sec. and 1876.3(31.86) sec. respectively.
- In the young male category (8km) the top 40 male athletes' mean times to cover the 8km in the two consecutive championships. i.e., 2020 and 2021 were 1528.8(20.94) sec. and 1483.0 (24.59) sec. respectively.
- The mean time that the top 40 athletes covered during the 2020 (37th) and 2021 (38th) cross-country championships were 1924.3(29.7) sec. and 1876.3(31.86) sec. respectively.
- In the 6km race higher race performance differences were reported in athletes who ranked between 11th -20th (4.97), 21st – 30th and 31st -40th positions in the 2020 championship than the 2021.
- In the 2021 championship less variability was reported in athletes in the first (1st -10th) and second (11th -20th) tenth rank categories as compared to the 2020 female 10km race.
- In the 2021 championship the 8km male participants achieved better results in all the four rank categories as compared to the 2020 similar race and less deviation from the

mean was reported in the 1st -10th of 2021, in the 11th -20th of 2020, in the 21st -30th of 2020 and 31st - 40th of 2020 championship.

- As compared to the 2020 championship male athletes who participated in the 2021 10km cross-country championship covered the race distance (10km) with fastest time in all rank categories although in all the four categories higher deviation in race performance were reported.
- Based on the independent sample t-test results there was significant performance difference ($p<0.005$) between the top 40 female athletes who participated in the 2020 (37th) and 2021(38th) Jan-Meda International cross-country championship.
- Like the female 6km cross-country championships that were conducted in 2020 and 2021 there was no statistically significant performance difference ($p<0.05$) was reported between the two 10km races.
- Statistically significant difference was reported between the 2020 and 2021 in the top 40 male 8km race performance.
- Based on the results of the analysis statistically significant difference ($p<0.05$) was reported between the mean performance (the 10km time to cover the distance) of the male athletes who participated in the two competition years (2020 and 2021).
- Although the 38th (2021) Jan-Meda International cross-country championship was conducted at Sululta with a difference in elevation (~130m) from the previous championship venue (Jan-Meda) better race performances were achieved in the Sululta races.

5.2 Conclusions

Following the spread of the COVID-19 at the international level restriction had been imposed in public gatherings like mass transportation, group sport trainings, competition and other public events. Of all the restrictions imposed in the country the restriction that had been implemented in sport trainings and competitions was considered as the new incidence that the athletes were facing for a continuous of seven months. During these times athletes, specially track and field athletes, had been challenged with various problems including but not limited to lack of continuous technical supports; shortage of access for training facilities; lack of medical and accommodation services like nutrition, medical services etc. For a continuous of seven months the athletes were spending their time in a condition where no one had the ability to determine the situation and due to this they were not motivated to train as usual. This condition also made them not to plan ahead and set goals that can frame their training process. Although these athletes faced these challenges the majority of the athletes who involved in the 2021 Jan-Meda International Championship were engaged in their self-initiated trainings (coaching). Thus, the purpose of this study was to identify the cross-country races performance differences in Ethiopian male and female athletes during the 2020 and 2021 cross-country championships. The following are the conclusions drawn from the major findings of the study.

Is there any significant performance difference in the 37th and 38th female 6km Cross-country championships?

- In the youth female 6km cross-country championship significant performance difference was identified between athletes who competed in 2020 and 2021 cross-country championships. In 2021 the top 40 female athletes (top 40 finishers) covered the 6km female race with fastest time as compared to the 2020 race.
- Like the 6km female category significant performance difference was identified between the 2020 and 2021 top 40 winners in the male 8km race. In the 2021 cross-country race male 8km competitors outperformed their counterparts (2021) with covering the 8km with fastest time.
- In the senior female category (10km) performance difference (time) was reported between the first 40 top winners of the 2020 and 2021 championships participants. As the data revealed female athletes who competed and ranked in the top 40 winners

achieved better race performance in the 2021 cross country championship as compared to the 2020.

- Like the three race categories performance difference was recognized between the top 40 athletes who participated in the 10km races of the 2020 and 2021 cross-country championships. In their mean time senior male athletes of in the top 40 finishers of the 2021 championship covered the race distance (10km) with lower time as compared to the 2021 championship.
- In the 2021 championship relatively small performance deviation from the mean time were reported among athletes who finished in the top ten ranks in the three race categories. However, in the same year (2021) the inter-athlete cross-country performance deviations were relatively higher in the rest of the race and rank categories (nine out of sixteen races). The current study also identified better running performances by the athletes (top 40 finishers) in all the races and rank categories during the 2021 championship as compared to the 2020.
- Even though the majority of the cross-country athletes had spent their time alone and with limited technical and logistic support, experienced lack of confidence to engage in self-coaching, fear of isolation and dependency during the restriction times, their individual and mean group performances were better than the previous year's (2020's) race performances. Based on the major findings of the study relatively lower load of training, less number of participation in local and international competitions, having freedom of decision making were the major advantages that these athletes were experienced during those seven months.

In general, in the 2021 championship athletes at the individual (winner) and group level (top 40 finishers) covered all the race distances with faster time. Moreover, although different and inconsistent deviations were reported in the majority of the races and rank categories athletes who participated in the 2021 championship showed better performance in all events and race categories.

5.3 Recommendations

Based on the conclusions made the following recommendations are forwarded.

- Based on the current and previous cross-country championship results it is highly recommended to identify suitable competition venues for the athletes.
- Cross-country/endurance event coaches are strongly advised to examine the advantages and disadvantages of the usual coach dependent trainings and the potential of the athletes for self-coaching.
- Through time cross-country coaches and athletes should shift from group coaching to predominantly individual based coaching approach.
- In order to critically examine and reach to wider conclusions further studies should be conducted to identify the possible factors for better cross-country athletes' achievement after the athletes resumed sport trainings following the seven months long restriction was lifted.

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ቃለ መጠይቅ

ከህዳር 14 ፤ 2012 ጀምሮ አትሌቶች ከተለመደው ልምምድ ተነጥለው በቆዩባቸው ጊዜያት ከአገልግሎት አቅርቦት፣ ከልምምድና ውድድር ጋር በተገናኘ የገጠሙ ችግሮችና መልካም አጋጣሚዎች

1. የአሰልጣኞች ቴክኒካዊ ድጋፍና ድጋፉ ሲሰጥበት የነበረ አካሄድ ምን ይመስላል?
2. ከልምምድ ጋር በተገናኘ ሲሰጥ የነበረ ድጋፍ ግለሰብ ተኮር ነው ወይንስ ቡድን ተኮር ነበር?
3. ከልምምድ ስፍራ ጋር በተገናኘ የነበረ ችግርና የተወሰዱ እርምጃዎች ምንድናቸው?
4. ከትራንስፖርት ጋር የገጠመ ችግርና የተወሰዱ እርምጃዎች ምንድናቸው?
5. ከምግብ፣ ከመኝታና ከህክምና አንጻር የገጠመ ችግርና የተወሰዱ እርምጃዎች ምንድናቸው?
6. በወቅቱ በክለቦች ደረጃ ሲደረጉ የነበሩ ድጋፎች/የድጋፍ አይነቶች ምንድናቸው?
7. ሲተገበሩ የነበሩ የግል የስልጠና ሂደት በአትሌቱ/ቷ ላይ የነበረው ጠንካራ ጎን ምን ነበር;
8. በራስ መሰልጠንና በቡድን መሰልጠን ያላቸው ጠንካራና ደካማ ጎኖች ምንድናቸው?
9. በክለብ ደረጃ ከነበረ ስልጠና (ከኮቪድ በፊት) በተሻለ በራስ ሲደረግ በነበረ ስልጠና በብቃትህ ላይ ለውጥ አይተሃል/አይተሻል?