

HEALTH ENHANCING RUGBY ACTIVITY PROJECT (HERA) PROGRAMME



THE HEALTH-ENHANCING RUGBY ACTIVITY PROJECT

HARK MLADOST (ZAGREB - CROATIA)
LJUBLJANA RUGBY (LJUBLJANA - SLOVENIA)

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1 INTRODUCTION

The Health Enhancing Rugby Activity (HERA) Programme is a targeted initiative tailored for young individuals who are either already engaged in rugby clubs or are interested in start practicing rugby. The main aim of this program is to address the specific needs of rugby clubs seeking to integrate health-enhancing physical activity (HEPA) initiatives into their existing curriculum. Primarily targeted at rugby coaches, the HERA Programme serves to equip them with the requisite knowledge and skills to effectively implement HEPA policies within the rugby context. HERA program is focused on improving coaching practices, identified as a primary barrier, ensuring accessibility and attractiveness for children and youth at risk of health issues such as obesity. HERA aims to foster holistic development among participants through improving motor skills, mental health, healthy eating habits, positive thinking, social inclusion and integration, self-confidence etc. HERA program was developed and tested by rugby clubs HARK Mladost and RK Ljubljana.



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2 WHAT IS HEPA?

Health-enhancing physical activity (HEPA) is any form of physical activity that benefits health and functional capacity without undue harm or risk (Pedisic et al., 2021). Given that the prevalence of insufficient physical activity and increased amount of sedentary behaviour is increasing (Pedisic et al., 2023), it is important to give the opportunity to children and adolescents to enjoy and to participate in physical activities. Rugby can be seen as a form of physical activity that enhances health (Griffin et al., 2021). Rugby is a collision team sport where big size and a lot of weight is cherished. Our experience is that this big size often comes with a BMI that is considered as an overweight or obese and body composition with too much fat mass. Because of that fact, we found it very important to create a set of guidelines that will promote increased energy consumption and promote healthy lifestyles. Increased energy consumption and healthy lifestyles will promote body composition change towards less fat mass and more fat free mass. Those guidelines will also equip our stuff at HARK Mladost with skills and knowledge on how to implement these guidelines in every day rugby training.



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3 NEEDS ANALYSIS

To understand the health benefits of adopting the Sports Club for Health approach and to recognise the potential of a specific sport to improve health, it is necessary to be aware of the health benefits of sports and physical activity in general. The World Health Organization defines health as a state of complete well-being (including its physical, mental, and social components), and not just as the absence of infirmity or disease (WHO 1946). Insufficient physical activity is one of the leading risk factors for chronic non-transmissible diseases (such as cardiovascular, metabolic, musculoskeletal, mental etc.). People who engage in sufficient physical activity have a significantly reduced risk of adverse physical health outcomes (Griffin et al., 2021). People who engage in sufficient physical activity also have a significantly reduced risk of experiencing adverse mental health outcomes. Physical activity also helps improve self-esteem, body image, sleep quality, the ability to cope with stress, mood, and overall life satisfaction. Engaging in physical activity also has a range of positive effects on social aspects of well-being.

Since rugby is a team sport, individuals participating in rugby need to develop social skills to be able to contribute the team and feel good about it. Feeling good about physical activity is a main prerequisite to enable youth to stay for life in rugby, either as a player or as a staff member in the future. Creating positive environment for learning, exercising, and spending time within club was identified as one of main priorities.

Current WHO guidelines on physical activity and sedentary behaviour for children and adolescents (age 5-17) states that it is recommended to participate on at least 60min of moderate to vigorous physical activity (mostly



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aerobic) per day and to participate in bone and muscle strengthening activities on at least 3 days per week (WHO 2020). By the current data contact and non-contact (tag and touch) forms of rugby can provide activity that is above 6 METs (metabolic equivalents) which is the definition of vigorous physical activity (Griffin et al., 2021). Also, because of contact nature of the sport itself, resistance training that strengthens bone and muscle is a big part of the training plan for rugby.

Rugby can be seen as a sport that can be used to fulfil WHO guidelines and provide health benefits for those who regularly participate in the training and gametime. Data show that rugby can provide with positive health benefits ranging from reduction in incidence from cardiometabolic pathology, improved immunological function and increased sense of well-being (Griffin et al., 2021).

Through years of assessments and observations within rugby clubs, it has become evident that a considerable portion of young participants have weight-related health issues. This highlights the need for a program like HERA, created to address the unique needs and challenges faced by overweight and obese children in the context of rugby.

Providing environment and opportunity to fully develop oneself especially for those 16 years of age and younger is the main priority of this programme.

Driven by those data, CROATIAN ACADEMIC RUGBY CLUB MLADOST (HARK MLADOST) with its HERA team created this document to enable current and future members and players to participate in HEALTH ENHANCING RUGBY ACTIVITY (HERA) safely and successfully.



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4 HERA PROJECT AIM

Aim of the HERA project is to improve institutional capacities of rugby clubs to be accessible and attractive to children and youth at risk of health problems and implementing the HERA programme in HARK MLADOST and RK LJUBLJANA.

HERA programme (developed under "HERA Project", project nmb. 101048736 call: ERASMUS-SPORT-2 021-SSCP) consists of set of guidelines. Those guidelines will provide a framework for what is needed to be done to transform a rugby club into a club that supports development of players and adoption of healthy lifestyle that will bring health benefits of physical activity. In this case physical activity will be rugby.

We have identified 7 key points and proposed a guideline for each. Guideline 1 is about how to implement SCforH principles in a rugby club. Guideline 2 is about staff education and how to prepare them to care for rugby players. Guideline 3 is about data collection, player form creation and health screening. Guideline 4 defines the best practice in fitness testing. Guideline 5 is about the logic behind training design that will bring increased energy consumption. Guideline 6 and 7 concerns with mental and social aspect of the team sport that rugby is.

In the next chapter those guidelines will be explained in more details.



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5 HERA PROGRAM GUIDELINES

5.1 GUIDELINE 1: HOW TO IMPLEMENT SCFORH PRINCIPLES

The purpose of the Sports Clubs for Health approach is to encourage sports clubs to invest more in using the health potential of their particular sport, especially by promoting health-enhancing sports activities within sports clubs (Koski et al., 2017).

So, HERA is implemented in rugby sport club through SCforH approach that consists of 7 main principles:

PRINCIPLE 1 - Promote health-enhancing sports activities

PRINCIPLE 2 – Follow well-established evidence-based practices

PRINCIPLE 3 - The SCforH initiatives should be implemented by qualified and competent personnel

PRINCIPLE 4 - The SCforH initiatives primarily include and/or promote the sport(s) that is/are part of the sports clubs standard programme

PRINCIPLE 5 - Participation in the SCforH initiatives poses no or only minimal health and safety risks

PRINCIPLE 6 - The SCforH initiatives take place in a "healthy" environment

PRINCIPLE 7 - The SCforH approach is committed to promoting an empowering, engaging, and enjoyable social and motivational climate

Through SCforH application model HARK Mladost has developed HERA model for rugby sport and rugby clubs.



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SCforH application model consist of 4 stages:

- Stage 1 – ACT – Assess the present conditions and goals
 - o Identify the support and possibilities for SCforH initiative within the club and in ist environment
- Stage 2 – Plan
 - o Define the target group
 - o Identify the health potential
 - o Explore the know-how and material support
 - o Agree upon the aims and strategy
- Stage 3 – DO – Implement
 - o Inform internally and externally
 - o Secure competent and supportive personnel
 - o Monitor the feasibility
- Stage 4 – CHECK – Follow-up
 - o Keep records and evaluate
 - o Share your success
 - o Go back to the former stage if needed

All 7 goals are achieved through action plan that follows above 4 stages.



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PRINCIPLE 1 - Promote health-enhancing sports activities:

By definition, health-enhancing sports activities are any sports activities that are beneficial to health and that present no or only minimal health and safety risks. Rugby sport is sport that develops all sorts of physical, mental and sociological aspect of a player. Health-enhancing sports activities are typically moderate-to vigorous-intensity aerobic-type activities, muscle-strengthening-type activities that involve major muscle groups, or activities that are performed to improve balance and/or prevent falls. By adhering to this principle, it will be ensured that the activities offered at rugby sport club will help the participants meet the physical activity recommendations and foster mental and social development of participants.

Rugby for young people - a sport for all shapes and sizes

Rugby is a game that is uniquely suited for all shapes and sizes, girls and boys, all ages and abilities. It can be enjoyed in many forms, from fifteens to sevens to non-contact games and can even be played on the beach or on snow. There is a level of participation for every child to enjoy. By applying a holistic approach, Rugby and other sports can play a prominent role in promoting healthy lifestyle, allowing players to enjoy a lifetime of sporting participation.



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PRINCIPLE 2 – Follow well-established evidence-based practices

All physical activities are carried based on relevant literature. To assure this, seasonal plan and programs for trainings various age grade groups of various fitness level must be produced, so coaches perform controlled training regime according to seasonal plan and program.

"World rugby passport" (<https://passport.world.rugby/>) is a learning platform that is used for all rugby specific practices.

Conditioning for Rugby online modules:

- ✓ Introduction to conditioning – Children
 - Long term athlete development
 - Child screening
 - Developing fundamental movements for rugby
 - Warm-up, cool-down and flexibility
 - Rugby conditioning for the child
- ✓ Introduction to conditioning – Youth
 - Long term athlete development
 - Functional Screening
 - Game demands warm-up and recovery
 - Preparing for resistance training
 - Speed and agility
- ✓ Introduction to conditioning – Adult
 - Game Demands
 - Functional screening
 - General conditioning



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- Integrated conditioning
- Managing the Training Plan
- ✓ Advanced Conditioning for Rugby (Pre-Level 2)
 - Player Profile
 - Functional Screening and Dynamic Testing
 - Injuries
 - Programme Management and Player Monitoring
 - Game-based Conditioning
 - Resistance Training
 - Gamespeed

PRINCIPLE 3 - The SCforH initiatives should be implemented by qualified and competent personnel

Expert team needed for implementation of HERA Project methodology in rugby clubs is identified with description of needed qualification and competence of personnel (kinesiologist, physiotherapist, doctor, nutritionist). Rugby club should have at their disposal all members of expert team, but if any roles are not covered with rugby clubs own personnel, than external support will be needed.

All expert team member must submit their CV from which qualification and competence is proven to club Sports Director. Sport Director will produce IDP (individual development plan) for all members of Expert team that need to improve in some areas of their scope of activities.

ONBOARDING PROCEDURE - Any new potential member of rugby club expert team will undergo the same approval process (CV, interview with club management) before becoming full member of rugby club expert team.



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PRINCIPLE 4 - The SCforH initiatives primarily include and promote the sport that is part of the sport club standard programme

The whole HERA Project is about implementation of HEPA principles through rugby sport. Standard clubs programmes will be enriched with HEPA principles. Activities and trainings are structured with purpose to fulfil daily/weekly guidelines about needed activities adjusted to individual needs. PRINCIPLE 4 is satisfied because all physical activities is carried on through rugby sport elements.

PRINCIPLE 5 - Participation in the SCforH initiatives poses no or only minimal health and safety risks

World rugby Activate program is a **structured exercise programme to reduce injuries in youth and adult community rugby** and must be implemented in all clubs trainings. Research studies that have assessed the effects of using Activate can be found (Hislop et al., 2017, Atwood et al., 2017). Coaches must be educated about specific Activate World Rugby Programme so they can execute it during trainings.

All players and club members should learn about **First aid in Rugby and Concussion Management for General Public** modules. This can be achieved through World Rugby Passport online module that aims to equip all with some of basic rugby-specific First Aid skills and Concussion Management skills and is recommended for all stakeholders. Completion of this online module from all club members is needed (<https://passport.world.rugby/player-welfare-medical/>).

Special attention should be on **quality of available infrastructure and equipment** for trainings. Both of those must meet minimum quality criteria so that no health and safety risks exist because of poor settings of those.



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For all new players in rugby club as well as non-player personnel (staff, management, volunteers etc...) it is recommended to conduct survey with “Physical Activity Readiness Questionnaire for Everyone” (PAR-Q+) (<http://eparmedx.com/wp-content/uploads/2022/01/ParQPlus2022ImageFile.pdf>). The questionnaire is design to tell the member whether it is necessary for them to seek further advice from their doctor or a qualified exercise professional before becoming more physically active.

Everybody involved in organising and playing Rugby has a duty of care in relation to the players. **The Rugby Ready programme** is intended to raise awareness of good practice and help stakeholders manage the inherent risks of a contact sport by putting appropriate safeguards in place. (<https://passport.world.rugby/injury-prevention-and-risk-management/rugby-ready/>)



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INFRASTRUCTURE IMPROVEMENT

Basic infrastructure is a prerequisite for safe rugby participation in physical activities in a rugby club. Physical preparation is a process of building a body capable of withstanding demands of playing a collision sport such as rugby. Apart from main playing field, HARK MLADOST has invested into reliving of auxiliary mini-pitch next to club dressing rooms and providing rugby players with basic training equipment (elastic bands, heavy balls, weights, bars, dumbbells etc.)



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PRINCIPLE 6 - The SCforH initiatives take place in a "healthy" environment

Physical surrounding of rugby club need to be adjusted to promote healthy lifestyle. Healthy beverages and snacks must be incorporated in Club cantina; club walls should be decorated with infographics about nutrition and recommended amount of weekly physical activity; analysis of sponsor promotion type must be carried on , so to exclude any unhealthy promotion such as cigarettes, alcohol, sports betting shop etc.

PRINCIPLE 7 - The SCforH approach is committed to promoting an empowering, engaging, and enjoyable social and motivational climate

Rugby's values of **Teamwork, Respect, Enjoyment, Discipline and Sportsmanship** are what makes the game special for those who enjoy the environment and culture they create. All activities in the rugby sport club on and off field must be based on those values. Club management and staff have special responsibility to disseminate those values, inside and outside of rugby club.

Teamwork

Teamwork is essential to Rugby. Rugby club welcome all new team members and include all because working as a team enriches everybody lives. Players play selflessly: working for the team, not for themselves alone, both on and off the field. Players take pride in their team, rely on one another and understand that each player has a part to play. Players speak out if their team or sport is threatened by inappropriate words or actions.



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Respect

Mutual respect forms the basis of Rugby sport. Clubs hold in high esteem Rugby sport, its values and traditions and earn the respect of others in the way club members behave. Clubs members respect match officials and accept their decisions. Club members respect opposition players and supporters. Club members value coaches and those who run our clubs and treat clubhouses with consideration.

Enjoyment

Enjoyment is the reason players play and support Rugby sport. Clubs encourage players to enjoy training and playing. Clubs use Rugby sport to adopt a healthy lifestyle and build life skills. Clubs are safeguard young players and help them have fun. Players enjoy being part of a team and part of the rugby family.

Discipline

Strong discipline underpins Rugby sport. Clubs ensure that Rugby sport is one of controlled physical endeavour and that all are honest and fair. Club members obey the laws of the game which ensure an inclusive and exciting global sport. Clubs support disciplinary system, which protects Rugby sport and upholds its values. Clubs observe the sport's laws and regulations and report serious breaches.

Sportsmanship

Sportsmanship is the foundation upon which Rugby sport is built. Clubs uphold the rugby tradition of camaraderie with teammates and opposition. Clubs and teams observe fair play both on and off the pitch and are generous in victory and dignified in defeat. Teams play to win but not at all costs and recognise both endeavour and achievement. Clubs ensure that the wellbeing and development of individual players is central to all rugby activity



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5.2 GUIDELINE 2: STAFF EDUCATION

We have identified WORLD RUGBY PASSPORT (<https://passport.world.rugby>) online educational platform as a excellent way to improve staff skills and knowledge about rugby. World rugby is a head organization that provides rules and standards about a game of rugby. Thru online learning platform that are expanded with face to face educations staff members get basic info about first aid in rugby and concussion management, player safety, welfare and injury prevention, as well as rugby specific strength and conditioning, coaching technical and tactical elements of rugby. At the end of online as well as face to face educations, participants get certified that needs to be renewed every 2 years.

5.3 GUIDELINE 3: PLAYER PROFILE FORM AND HEALTH SCREENING

We have used WORLD RUGBY player profile form (https://passport.world.rugby/media/upkaaetx/player_profile_2011_en.pdf) as a data collection system that gives us basic info about our players. Supplemented with Physical activity readiness questionnaire (https://eparmedx.com/?page_id=75) we can have entry data about health status of rugby players, and can identify those in need of further medical assessment before participation in rugby. That is important because of aforementioned body composition issues in our rugby players.



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5.4 GUIDELINE 4: FITNESS TESTS

Well-rounded and personalized training plan is developed on the data obtained from fitness tests. Fitness tests come in many forms, testing for different physical abilities (endurance, strength, power, speed, etc.). Because main aim of the HERA programme is to increase amount of physical activity in young players, adopted strategy is to run 2 fitness test. Data from those tests would provide coaches with starting point against which they can compare future results. Fitness tests that were adopted in HERA Project was 6min max distance covered by running and "motor polygon" that would include basic movements (3m straight running, jump over 60cm obstacle, 3m straight running, 3m side shuffle to the right then left, 3m backpaddling, performing 3m backwards walking on all 4 extremities) performed one after the other (time for performance of the polygon was measured).

A variety of tests have been designed to test physical fitness in youth.

For example International batteries of youth fitness tests can be found at following internet address from US National library of Medicine:

https://www.ncbi.nlm.nih.gov/books/NBK241311/table/tab_2-6/?report=objectonly

Depending of clubs infrastructure and available equipment coaches can choose type of general tests that they will use to asses current physical form of young players and also to monitor their future progress.



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5.5 GUIDELINE 5: TRAINING GUIDELINES

LONG-TERM ATHLETIC/PLAYER DEVELOPMENT PROGRAM (LTAD/LTPD)

Using key points (Lloyd et al., 2012) combined with rugby specific knowledge and skills gained from WORLD RUGBY PASSPORT has changed the way our club is working with youth (and adults) and how our coaches are structuring rugby trainings. Long term player development is a long-term approach to maximising individual potential and involvement in Rugby. LTPD models highlight the importance of having coaches working with children and youth, who understand the technical, tactical, physical, mental and lifestyle needs of children and young people as they progress along their Rugby journey. LTPD provides a platform for coaches to encourage and support participants at every level of their involvement in the game, to help them fulfil their potential and to remain involved in sport

Long term athletic development is an approach to how to train and develop physical and motor capacities, as well as technical and tactical skills of the players. It uses biological as well as chronological and training age of the players to develop and accommodate specific targets of the short, mid and long term training goals. Most important data for the decision on how to train players is to identify those who are in a peak height velocity period (the time when adolescents grow the fastest). To be able to do that it is important to monitor players height couple of time per year (i.e. once every 3 months). That is important because by identifying PHV period we are able to shift training goals from speed and agility development, to hypertrophy, strength and power development. Also after the PHV period more structure to the training is given as well as more time is devoted to educating players about what healthy lifestyle looks like. In comparison to that youth before the period of PHV is given less structure and more fun to the training.



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Details about on which physical capacity to put emphasis in which age can be found in the aforementioned paper.

Rugby Ready

(https://passport.world.rugby/media/nnbhdxiw/rugby_ready_book_2014_en.pdf)

Rugby ready is a WORLD RUGBY manual about how to prepare players for the demands of the game itself. It covers topics from pre/during/post-match issues. It is a starting literature for those staff members that haven't been involved in rugby as well as for those who are former players or fans wishing to participate in a work with rugby players. It provides info about how to teach players basic elements of the game (tackle, ball carrying, breakdown).

TRAINING STRUCTURE

With limited amount of weekly time with rugby players (2-3x per week) effective training strategies are necessary. Three key points were identified. First is that we want rugby players to approach 100% of training arrivals. In order to do that players need to stay injury free. World rugby has created ACTIVATE (<https://passport.world.rugby/injury-prevention-and-risk-management/activate-programme/>) which is a injury prevention exercise programme that can and should be used as a warm up strategy. Because of a collision nature of the rugby and a high rate of musculoskeletal injuries and concussions we have adopted ACTIVATE in HARK Mladost (further info about ACTIVATE can be found on a link provided).

Second, to be able to change body composition of our players, activities that consume high amounts of energy are incorporated into training structure. Limited amount of weekly time has forced us to combine those activities with rugby specific skills. Game based high intensity interval training is ideal way to do that. Non-contact forms of rugby (tag and touch) can provide vigorous activity (MET>6) activity to our players. With modified rules, touch rugby can be



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shaped to be more like high intensity interval training or more like continuous aerobic activity.

Third, to be able to loose fat mass and reduce the amount of lost muscle mass, resistance training is incorporated into training structure. Bodyweight, medicine balls, rubber band and plyometric exercises are used.

5.6 GUIDELINE 6: MENTAL HEALTH

Keeping mentally healthy is just as important as keeping physically healthy. Australian guide to keeping mentally healthy with its principles ACT BELONG COMMIT (Robinson et al., 2013.) has been identified as our resource for opening our minds about potentials of a rugby for individuals. It is based on the principles of the 'Act-Belong-Commit' positive mental health and wellbeing campaign. Keeping active, alert and engaged with the world around us (Act), having a feeling of belonging and a sense of identity (Belong), and doing things that give meaning and purpose to life (Commit) all contribute to our overall wellbeing. Also it goes hand in hand with some of the principle of SCforH approach.



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5.7 GUIDELINE 7: SOCIAL ASPECT

The Rugby community provides a long-term development (LTPD) programme for players of all ages with an infrastructure that supports individual players' expectations and sporting ambitions. Players are therefore able to play the game purely for fun or, if they choose, to develop their individual skills and understanding of the technical aspects of the game from the grass roots level up to the elite level.

Rugby, however, provides more than just the opportunity to undertake vigorous exercise; it is a sport with values that develop players within a social and moral context. The Game's core values are:

- **INTEGRITY** - Integrity is central to the fabric of the Game and is generated through honesty and fair play
- **PASSION** - Rugby people have a passionate enthusiasm for the Game. Rugby generates excitement, emotional attachment and a sense of belonging to the global Rugby family
- **SOLIDARITY** - Rugby provides a unifying spirit that leads to lifelong friendships, camaraderie, teamwork and loyalty which transcends cultural, geographic, political and religious differences
- **DISCIPLINE** - Discipline is an integral part of the Game, both on and off the field, and is reflected through adherence to the Laws, the Regulations and Rugby's core values
- **RESPECT** - Respect for team mates, opponents, match officials and those involved in the Game



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6 EXAMPLE OF HERA PROGRAMME IN HARK MLADOST RUGBY CLUB

Screening of participants was performed three times (first week of March 2023, June 2023, December 2023.) with 22 participants. Anthropometric data were collected (weight, height, BMI), motor characteristics (6min run, movement polygon that included acceleration, deceleration, side shuffle, jump over an obstacle, backwards running, walking on all four extremities combined) and social questionnaire with aim of receiving comments on changes that HERA PROJECT has brought to HARK MLADOST.

FIRST PERIOD→	01.09.-01.11.2022. HERA programme development
SECOND PERIOD→	01.03.-01.05. 2023. HERA programme first screening (during March), implementation and testing 06.2023. HERA programme second screening
THIRD PERIOD→	01.09.-01.11.2023. HERA programme implementation and testing 12.2023. HERA programme third screening

HERA programme had three periods.

During **first period**, from beginning of September to November 2022, HERA team from HARK MLADOST created outline of this document and identified WORLD RUGBY PASSPORT online learning platform as an ideal way to provide education about safe and successful playing of rugby. WORLD RUGBY PASSPORT is divided into "medical" part which considers itself with medical



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management of injuries, preventive and rehab options for rugby players. It has online modules from entry level first aid to elite level medical care. Two other parts of WORLD RUGBY PASSPORT are strength and conditioning and rugby coaching. It gives information about effective training methods and coaching tactics. Online and face to face modules ranging from entry level to elite level are on display.



HARK MLADOST devoted first period time to assist all their coaches and staff pass entry level modules from first aid, strength and conditioning and coaching.

Second period (01.03.-01.05. 2023.) started with first screening that give data about entry characteristics of participants. Characteristics that were screened are: anthropometry data (weight, height, BMI), motor characteristics (6min run, movement polygon) and social questionnaire about likes and dislikes regarding HERA.

After entry screening, HERA programme was implemented during the in-season period because at that time HARK MLADOST players is playing friendly and competition games. Because of that HERA programme in this period is



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mainly concerned with injury reduction, ongoing learning of rugby specific skills (tackling, carrying of the ball, lineout, scrum, maul, ruck) and adopting healthy lifestyle practices among their players. Healthy lifestyle practices includes low levels of sedentary behaviour, balanced and varied diet, fulfilment of WHO guidelines on physical activity and sedentary behaviour.

All three are equally important for development of full potential of every human being, particularly young people (under 16 years of age).



Third period (01.09.-01.11.2023.) is same as second period because friendly and competitive season is ongoing in Croatia during fall, and rugby matches are played in average every two weeks. Three months before and one month after the third period, second and third screening were performed. What was expected from screening data was to see improvement in motor characteristics, track changes with growth and development of participants and to fine gauge our approach to youth with help of comments in social questionnaires.



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Anthropometric data:

After measuring weight and height of participants, Body Mass index has been calculate using formula:

$$\text{BMI} = \text{weight (kg)} / \text{height (m)}^2$$

Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. A high BMI can indicate high body fatness. BMI screens for weight categories that may lead to health problems, but it does not diagnose the body fatness or health of an individual.

Motor characteristics

The cooper test which was designed by Kenneth H. Cooper in 1968 for US military use is a physical fitness test. In its original form, the point of the test is to run as far as possible within 12 minutes. Pacing is important, as the participant will not cover a maximal distance if they begin with a pace too close to an all out sprint. The outcome is based on the distance the test person ran, their age and their sex. For this purpose test was performed 6 minutes run.

https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

Using the BMI, overweight and obesity for Children and Adolescents are defined as follows::

- **Underweight:** BMI <5th%
- **Healthy weight:** BMI > 5th% and <84th%
- **Overweight:** BMI ≥85th% and <94th%
- **Obesity:** BMI ≥95th%



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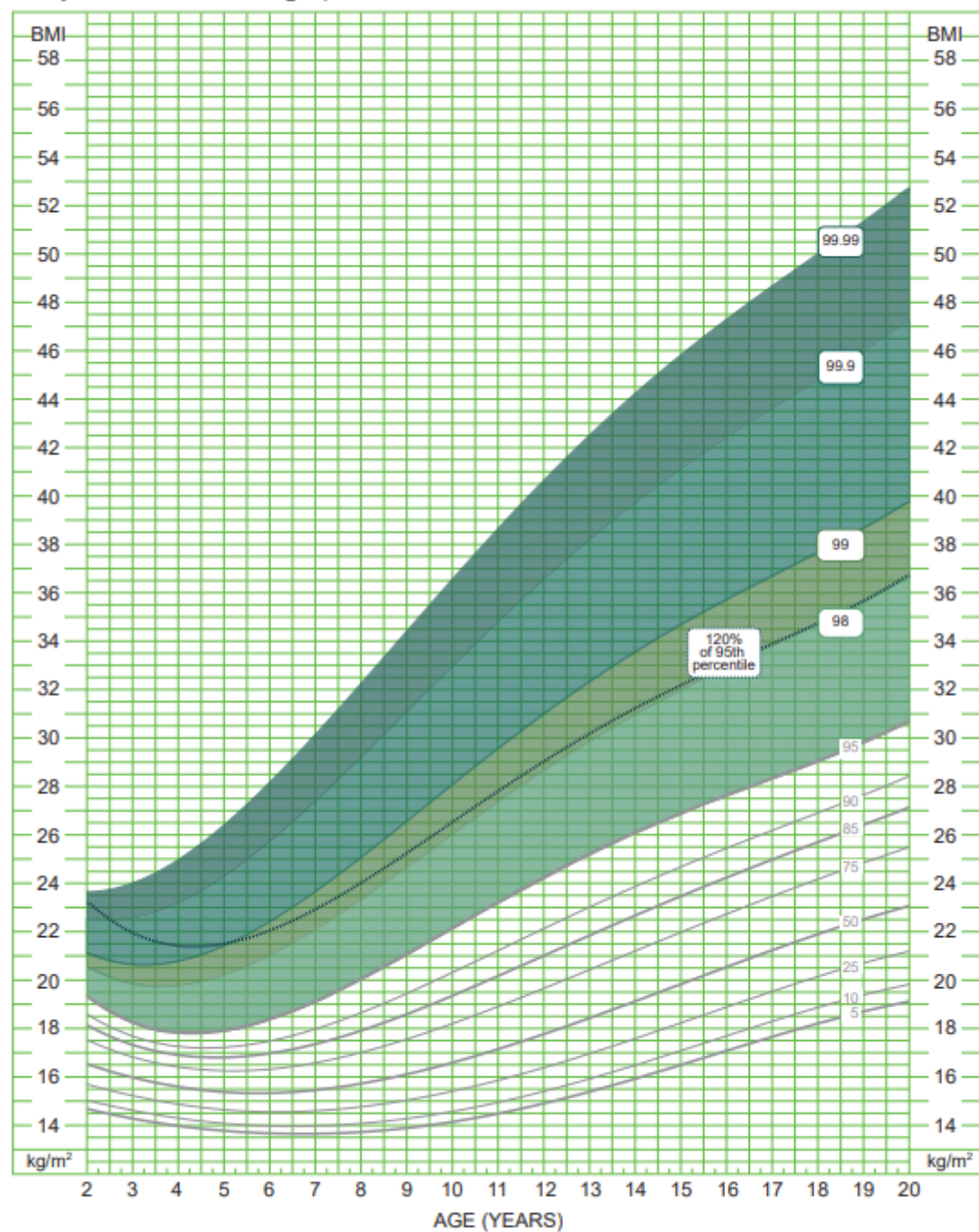
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Boys: Ages 2–20 years

Body mass index-for-age percentiles

NAME _____

RECORD # _____



December 15, 2022
Data source: National Health Examination Survey and National Health and Nutrition Examination Survey.
Developed by: National Center for Health Statistics in collaboration with National Center for Chronic Disease Prevention and Health Promotion, 2022.
CS330334



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Individual measurement data of the 22 participants (age, height, weight, BMI, fitness test results) are not included in the public version of this document in order to protect the privacy of the children.

ANALYSIS OF DATA: at the first measurement, 10 of the 22 participants were detected as overweight or obese. 80% of them showed a small decrease in BMI from the first to the third measurement, and 70% of them showed improvement in the Cooper and polygon tests.

CONCLUSION: Collected data has confirmed benefits of HERA programme for overweight or obese children.



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Sociological characteristics – questionnaire for players and their parents

Ten players and their parents has participate in questionnaire survey about sociological characteristics of HERA Project participation.

The questions was answered with YES or NO, and in case of YES answer importance of change has marked with grade 1 to 10 (with 1 meaning minor impact, and 10 meaning maximum impact) in as following:

Players survey summary:

Nmbr	Question	YES/NO	Importance of change 1-10
1.	Did you like HERA Project?	YES 10	grade 10 -> 80% grade 9 -> 20%
		NO 0	
2.	Would you like that more of such events you participate in?	YES 10	grade 10 -> 75% grade 9 -> 20% grade 8 -> 5%
		NO 0	
3.	Would you recommend to your acquaintances rugby as form of sport activity to participate in?	YES 10	grade 10 -> 100%
		NO 0	
4.	Did you notice physical and sociological changes regards to HERA Project participation,	YES 10	grade 9 -> 60% grade 8 -> 20% grade 7 -> 10% grade 6 -> 10%
		NO 0	
5.	Do you see rugby club HARK Mladost as a organisation that encourages children to healthy life style?	YES 10	grade 10 -> 90% grade 9 -> 10%
		NO 0	

Parents survey summary:

Nmbr	Question	YES/NO	Importance of change 1-10
1.	Did you like HERA Project?	YES 10	grade 10 -> 100%
		NO 0	
2.	Would you like that more of such events you participate in?	YES 10	grade 10 -> 90% grade 9 -> 10%
		NO 0	
3.	Would you recommend to your acquaintances rugby as form of sport activity to participate in?	YES 10	grade 10 -> 80% grade 9 -> 10% grade 8 -> 10%
		NO 0	



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4.	Did you notice physical and sociological changes regards to HERA Project participation,	YES 10	grade 9 -> 14 answ. -> 60% grade 8 -> 3 answ. -> 20% grade 7 -> 2 answ. -> 10% grade 6 -> 1 answ. -> 10%
		NO 0	
5.	Do you see rugby club HARK Mladost as a organisation that encourages children to healthy life style?	YES 10	grade 10 -> -> 100%
		NO 0	

ANALYSIS OF DATA: all participants (10 players and 10 of their parents) of questionnaire survey has confirmed YES to all 5 questions. Grades for importance of answers were mostly grade 9 and 10. Lowest given importance grade was given to question 6 by one applicant.

CONCLUSION: Collected data has confirmed that children and their parents recognise importance of participation in rugby sport with benefits to healthy life style, and that activities such as HERA project have positive influence on children's view of healthy life style. Because of that it is expected that more youth players will stay active through participation in rugby club that adopt HERA Programme guidelines.



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HERA PROGRAM GUIDELINES IMPLEMENTATION IN HERA PROJECT

GUIDELINE 1: HOW TO IMPLEMENT SCFORH PRINCIPLES

PRINCIPLE 1 - Promote health-enhancing sports activities

During HERA Project timeline participants were subjected to 3x weekly rugby trainings that were consisted of moderate to vigorous intensity aerobic type activities, muscle-strengthening-type activities that involve major muscle groups and activities that were performed to improve balance and prevent falls was. Besides weekly trainings, 2x per month participants played friendly or competitive rugby games.

So, rugby activities offered at rugby sport club helped the participants to meet the physical activity recommendations and foster mental and social development.

PRINCIPLE 2 – Follow well-established evidence-based practices

All physical activities during HERA Project were carried out according to “World rugby passport” guidelines and resources for all rugby specific practices.

PRINCIPLE 3 - The SCforH initiatives should be implemented by qualified and competent personnel

Expert team that conducted HERA Project activities consisted of 3 qualified trainers, one doctor of medicine, one physiotherapist and one dedicated strength and condition trainer. All of them has subjected to club's Sports director their CV's and proven their qualification and competence and also have confirmed that they satisfy legal requirements for their functions.



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Sports director has issued to all expert team members individual development plan to improve some areas of their scope of activities.

PRINCIPLE 4 - The SCforH initiatives primarily include and/or promote the sport(s) that is/are part of the sports clubs standard programme

All physical activities was carried on through rugby sport elements. Activities and trainings were structured with purpose to fulfil daily/weekly guidelines about needed activities adjusted to individual needs

PRINCIPLE 5 - Participation in the SCforH initiatives poses no or only minimal health and safety risks

In all club trainings World rugby Activate program was implemented

All players and club members has learned basic informations about First aid in Rugby and Concussion Management for General Public modules in World Rugby passport online platform

Available infrastructure and equipment for training were inspected regularly to assure that no health and safety risks exist because of poor settings of those.

PRINCIPLE 6 - The SCforH initiatives take place in a "healthy" environment

Physical surrounding of HARK Mladost rugby club has been adjusted to po promote healthy lifestyle through healthy beverages and snacks in club cantina and infographics about weekly physical activity and nutrition recommendations.



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There was no unhealthy promotion in clubs surroundings such as cigarettes, alcohol, sports betting shop etc.

PRINCIPLE 7 - The SCforH approach is committed to promoting an empowering, engaging, and enjoyable social and motivational climate

Club management and staff has regularly through every club activities disseminated to all club members and supporters rugby core values (Teamwork, Respect, Enjoyment, Discipline and Sportsmanship)

GUIDELINE 2: STAFF EDUCATION

All staff members has got basic info about first aid in rugby and concussion management, player safety, welfare and injury prevention, as well as rugby specific strength and conditioning, coaching technical and tactical elements of rugby. At the end of online learning process they got certificate for competition.

GUIDELINE 3: PLAYER PROFILE FORM AND HEALTH SCREENING

Entry data about health status of club rugby players has collected through WORLD RUGBY player profile form.

GUIDELINE 4: FITNESS TESTS

The cooper test was used as physical fitness test. In its original form, the point of the test is to run as far as possible within 12 minutes, but for HERA Project purpose test was performed as 6 minutes run.



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Second fitness test was movement polygon that included acceleration, deceleration, side shuffle, jump over an obstacle, backwards running, walking on all four extremities combined.

All results of screening fitness tests was saved in club database and analysed to see improvement of fitness characteristics in participants through time and to confirm correctness of training regime.

GUIDELINE 5: TRAINING GUIDELINES

Club trainings were structured with respect to YOUTH PHYSICAL DEVELOPMENT MODEL according to the player gender and age (participants were 10-16 yrs old):

YOUTH PHYSICAL DEVELOPMENT (YPD) MODEL FOR MALES																					
CHRONOLOGICAL AGE (YEARS)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21+	
AGE PERIODS	EARLY CHILDHOOD			MIDDLE CHILDHOOD						ADOLESCENCE						ADULTHOOD					
GROWTH RATE	RAPID GROWTH			STEADY GROWTH						ADOLESCENT SPURT						DECLINE IN GROWTH RATE					
MATURATIONAL STATUS	YEARS PRE-PHV									PHV						YEARS POST-PHV					
TRAINING ADAPTATION	PREDOMINANTLY NEURAL (AGE-RELATED)									COMBINATION OF NEURAL AND HORMONAL (MATURITY-RELATED)											
PHYSICAL QUALITIES	FMS			FMS						FMS						FMS					
	SSS			SSS						SSS						SSS					
	Mobility			Mobility						Mobility						Mobility					
	Agility			Agility						Agility						Agility					
	Speed			Speed						Speed						Speed					
	Power			Power						Power						Power					
	Strength			Strength						Strength						Strength					
	Hypertrophy									Hypertrophy						Hypertrophy					
	Endurance & MC			Endurance & MC						Endurance & MC						Endurance & MC					
TRAINING STRUCTURE	UNSTRUCTURED			LOW STRUCTURE						MODERATE STRUCTURE						HIGH STRUCTURE			VERY HIGH STRUCTURE		

Lloyd et al., 2012



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Every training has started with application of World rugby ACTIVATE programme which is a injury prevention exercise programme that had been used as a warm up strategy.

Training activities that consume high amounts of energy were incorporated into training structure. Limited amount of weekly time has forced us to combine those activities with rugby specific skills. Game based high intensity interval training was ideal way to do that. Non-contact forms of rugby (tag and touch) were performed. With modified rules, touch rugby was shaped to be more like high intensity interval training and more like continuous aerobic activity.

To be able to loose fat mass and reduce the amount of lost muscle mass, resistance training was incorporated into training structure. Bodyweight, medicine balls, rubber band and plyometric exercises were used.

GUIDELINE 6: MENTAL HEALTH

Participants were active through all sorts of activities (not only rugby trainings) such as volunteering in club events, joint activities in nature etc. Feeling of belonging and a sense of identity to team and club in general was nurtured through HERA Project timeline. Humanitarian activities helped to give meaning and purpose to life. All of those things contributed to participants overall wellbeing

GUIDELINE 7: SOCIAL ASPECT

In rugby club joint social activities such as traveling to games to another city, excursions to nature and training camps were a vital factor for nurturing social aspect of club members.



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7 HERA PROJECT DEBRIEFING

HERA PROJECT has pushed us into transformation to not only being a club that creates rugby players but rather club that creates healthy, confident and successful athletes. Creating sport friendly, safe and enjoyable environment has already made positive changes to our club, players, parents and HARK MLADOST friends.

In order to build further on this wave of positivity, it is recommended to gather data on the ongoing processes in the club, analyse those at the end of predefined period (i.e. end of spring/summer season) and make plans for upcoming offseason/preseason. Aim of that would be to make players more athletic every year and to make them better rugby players. However, all these efforts would be futile if our primary focus isn't on ensuring the health, happiness, and overall success of our young athletes.

8 LOOK IN TO THE FUTURE

Onboarding process, better tracking and info collection about our players, WORLD RUGBY educations, long term player development plan and training structure is hopefully going to bring more youth into playing rugby. Our mission is to develop further this programme and use it as overarching goal to be better every day.



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