

Literature Review Report

2023





HEPALIS

Increasing the physical activity levels of low-income sedentary individuals under the guidance of personal trainers

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1. Introduction

1.1. Brief overview of the research topic and purpose of the literature review

The HEPALIS project's research topic aims to raise awareness and influence behaviour to promote an active and healthy lifestyle. The goal of the literature review is to collect current knowledge and research on the subjects of physical activity, healthy lifestyles, and the obstacles to these for people with low incomes, including refugees, home-based workers, online university students, seniors, people with disabilities, and housewives who have no source of income.

The review intends to give information to help the creation of the Injury Prevention Guide for Non-Athletes and the Boot Camp curriculum for personal trainers. The literature study will also help with the design and implementation of the pilot scheme, as well as the creation of the gamification-based online sports platform for mentoring, training, and physical exercise.

In addition to examining the obstacles that low-income people must overcome in order to participate in these activities, the evaluation will concentrate on proven strategies for boosting physical activity levels and encouraging healthy lives. The information gathered will be utilized to help build the HEPALIS project's general goals as well as the curriculum for the Boot camp and Injury Prevention Guide.

1.2. Background information and context of the topic

The HEPALIS project was launched in response to rising fears about the health consequences of rising rates of inactivity across Europe. Over 500,000 deaths and €80 billion in annual losses to the EU economy are attributed to inactivity each year (Eurostat, 2023). Health inequalities and social exclusion result from a lack of physical exercise, and the rates of both are highest among marginalized groups such as those with lower incomes, migrants, and those with disabilities (World Health Organization, 2021).

Studies have demonstrated that minimizing the health hazards associated with physical inactivity and increasing social inclusion and economic growth can be achieved via the promotion of physical exercise and healthy lifestyles. In an effort to get more people moving, the European Union (EU) has passed laws and established policies like the EU Physical Activity Guidelines and the EU Work Plan for Sport, but putting them into practice is proving difficult (European Commission, 2008).

This is why the HEPALIS project is working to promote physical exercise among low-income people in novel and long-lasting ways. The project is based on research on successful strategies for boosting physical activity and encouraging healthy lifestyles, including the application of technology and social assistance.

Using this foundation of knowledge, the HEPALIS project's literature review will dig into the challenges low-income people encounter while trying to exercise and uncover solutions that work. The cost of equipment and facilities, for instance, has been found to be a major barrier for low-income individuals, and interventions like giving free or low-cost access to facilities can enhance participation (World Health Organization, 2013).

The literature review will contribute to the achievement of the HEPALIS project's overall objectives and assist in addressing the challenge of physical inactivity in Europe by providing evidence-based recommendations for the development of the Boot camp curriculum for personal trainers and the Injury Prevention Guide for non-athletes, as well as the design and implementation of the gamification-based platform and pilot schemes.

1.3. Definition of key terms and concepts related to Boot camp Curriculum and Injury Prevention Guide for Non-Athletes

Physical activity: Any bodily movement produced by skeletal muscles that results in energy expenditure, such as walking, cycling, or sports (World Health Organization, 2021).

Sedentary behaviour: Any waking behaviour characterized by an energy expenditure of 1.5 METs or less while in a sitting or reclining posture, such as sitting or lying down (Tremblay et al., 2017).

Health-enhancing physical activity (HEPA): Physical activity that promotes health and prevents disease, such as moderate-to-vigorous intensity physical activity (World Health Organization, 2021).

Social support: The provision of emotional, informational, or instrumental assistance by others that is intended to help an individual cope with stress or adversity (Thoits, 2011).

Gamification: The use of game design elements in non-game contexts to engage and motivate users (Deterding et al., 2011).

Personal trainers: Individuals who work with clients to design and implement exercise programs that meet their specific needs and goals (National Academy of Sports Medicine, 2023).

Behavioural change: The process of adopting new habits or behaviours that lead to positive health outcomes, such as regular physical activity (Prochaska et al., 1992).

Low-income individuals: People who have limited financial resources and income, often defined as those living below the poverty line or with an income below a certain threshold (Eurostat, 2023).

Social exclusion: The process whereby certain individuals or groups are denied full participation in society due to economic, social, or cultural factors (European Commission, 2023).

Health disparities: Differences in health outcomes or access to healthcare between different populations, often driven by social, economic, or environmental factors (National Institutes of Health, 2023).

1.4. Explanation of the research questions and objectives

Research Questions:

1. What are the barriers that low-income individuals face in engaging in physical activity, and how can these barriers be addressed?
2. What are the effective strategies and methods for promoting physical activity and healthy lifestyles among low-income individuals?
3. How can technology and social support be used to promote physical activity and healthy lifestyles among low-income individuals?
4. What are the best practices for designing and implementing physical activity interventions for low-income individuals, and how can these be applied in the context of the HEPALIS project?
5. What are the best practices for developing effective personal trainer training programs and injury prevention guide for non-athletes?
6. How can gamification be effectively used to increase physical activity and promote healthy lifestyles among low-income individuals?
7. What are the key success factors for implementing sustainable physical activity promotion initiatives for low-income individuals?
8. What are the key factors that contribute to permanent behavioural change in physical activity practice among low-income individuals?
9. What are the key components of an effective injury prevention guide for non-athletes?
10. What are the key components of an effective personal trainer boot camp training curriculum?
11. How can personal trainer boot camps be made more accessible and appealing to personal trainers?

Research Objectives:

1. Identify the most recent and relevant research studies on physical activity promotion among low-income individuals in Europe.
2. Synthesize and analyse the research findings to identify the most common barriers to physical activity for low-income individuals in Europe, such as lack of access to facilities or equipment, social support, and motivation.
3. Identify effective strategies for promoting physical activity and healthy lifestyles among low-income individuals in Europe, such as community-based programs, social support, and technology-based interventions.
4. Review the existing personal trainer training programs and injury prevention guide for non-athletes and provide recommendations for their improvement based on the latest evidence.
5. Review the existing literature on gamification-based interventions for physical activity promotion among low-income individuals and provide recommendations for their design and implementation.
6. Identify the key success factors for implementing sustainable physical activity promotion initiatives for low-income individuals in Europe, such as policy support, stakeholder engagement, and community participation.
7. Provide evidence-based recommendations for the development of the Boot camp curriculum for personal trainers and the Injury Prevention Guide for Non-Athletes, as well as the design and implementation of the gamification-based platform and pilot schemes, to support the overall objectives of the HEPALIS project.



2. Methodology

2.1. Description of the search strategy used to find relevant literature

1. First, we identified keywords and phrases associated with health promotion, low-income people, and physical activity. Physical activity, sedentary behaviour, low-income individuals, health promotion, personal trainers, gamification, and technologically based interventions were some keywords used in the search.
2. Boolean operators like “AND,” “OR,” and “NOT” were used to combine search terms and narrow the results. A search for “physical activity AND low-income individuals,” for instance, would retrieve articles that contain both of those terms.
3. We used search filters to refine our results by factors like study methodology, source material, and language.
4. Keywords were used to inform the creation of search strings, which comprised various permutations of terms, Boolean operators, and filters. The HEPALIS literature search included the following combinations of terms: ((“physical activity” OR “sedentary behaviour”) AND (“low-income individuals” OR “health promotion”) AND ((“personal trainers” OR “injury prevention”) OR (“gamification” OR “technology-based interventions”))).
5. It was determined whether or not the search results were applicable to the research questions and whether or not they fulfilled the inclusion and exclusion criteria by reviewing the results.

The HEPALIS literature search used a thorough and methodical approach to find all papers that could be relevant to the topic of physical activity programs for low-income people.

2.2. Description of the inclusion and exclusion criteria used to select the literature

Criteria for Inclusion:

This literature review concentrated on research on physical activity, sports, and non-athlete injury prevention. The following were the studies’ inclusion criteria:

- Availability in English;
- Relevance to the research subject and aims
- Studies that rely on peer-reviewed sources or primary data.

Exclusion Criteria:

Studies that did not pertain to the study’s topic or were not published in English were eliminated from this evaluation of the literature. Last but not least, research pertaining to professional athletes rather than non-athletes was also left out of the review.

2.3. Information on the data sources used (e.g. academic databases, Google Scholar, etc.)

The literature review was conducted using academic databases such as PubMed, Scopus, and Google Scholar. These databases were chosen for their reputation in providing reliable and current information on the topic of interest. The search terms used included phrases related to the Boot camp Curriculum and Injury Prevention Guide for Non-Athletes, such as “Boot camp training”, “injury prevention for non-athletes”, and “personal trainer curriculum”. The search was limited to the last 10 years to ensure the relevance and currency of the information obtained.

2.4. Overview of the data extraction and synthesis methods used to analyse the literature

In order to extract and synthesize the data for this literature study, a comprehensive search of academic databases, Google Scholar, and other sources was conducted. Information pertinent to the analysis was retrieved from the studies and checked for compliance with the inclusion and exclusion criteria. The information was synthesized utilizing a qualitative synthesis method, which included topic analysis and narrative synthesis so that useful conclusions could be drawn.



3. Overview of Relevant Literature

3.1. Summary of the key findings, theories, best practices and studies related to Boot camp training for personal trainers

Theoretical foundation: Effective personal trainer boot camp training should have a theoretical foundation that covers topics such as exercise physiology, anatomy, kinesiology, biomechanics, and nutrition.

Program design: Personal trainer boot camp training programs should cover topics related to program design, including exercise selection, program periodization, and injury prevention.

Client assessment: Effective personal trainer boot camp training should include training on client assessment and goal setting, including the use of tools such as fitness assessments, health questionnaires, and goal setting.

Teaching methods: Best practices for personal trainer boot camp training include the use of multiple teaching methods such as lecture, discussion, practical application, and hands-on training.

Online and distance learning: Providing online and distance learning options can make personal trainer boot camps more accessible to trainers who may not be able to attend in-person sessions due to geographical or scheduling constraints.

Continuing education: Ongoing continuing education is essential for personal trainers to stay up-to-date with the latest research and trends in the fitness industry. Personal trainer boot camp training programs should include ongoing continuing education requirements.

Practical experience: Personal trainer boot camp training programs should include practical experience, such as working with clients, in order to provide hands-on training and practical application of the concepts learned.

In summary, effective personal trainer boot camp training should have a strong theoretical foundation, cover program design and client assessment, use multiple teaching methods, include online and distance learning options, have ongoing continuing education requirements, and include practical experience.

3.2. The key findings, theories, best practices and studies related to Injury Prevention Guide for Non-Athletes

Theory: According to Aronson (2016), the Injury Prevention Guide for Non-Athletes should be built on a solid theoretical foundation that includes information on areas like anatomy, biomechanics, and physiology.

Injury prevention approaches: According to Rössler et al. (2014), effective injury prevention guide for non-athletes should cover tactics like correct warm-up and cool-down procedures, stretching, strengthening exercises, and proper form and technique during workouts.

Education on injury prevention: According to Hootman et al. (2007), injury prevention guide should also include educational elements to aid readers in understanding the significance of injury prevention and how to use injury prevention tactics in their everyday lives.

Injuries that are widespread among non-athletes, such as low back pain, neck discomfort, and shoulder injuries, should be the emphasis of injury prevention guide (Kohl et al., 2012).

Exercise changes: According to best practices for injury prevention guidelines, people should learn how to alter their exercise routines to lower their risk of injury. Examples of such modifications include utilizing lighter weights or altering the range of motion while exercising (Hootman et al., 2007).

Gradual progression is crucial for injury prevention while increasing the volume and intensity of exercise. In order to avoid injury, exercise intensity and volume should be gradually increased over time, according to injury prevention instructions (Rössler et al., 2014).

Collaboration with medical experts: According to Kohl et al. (2012), collaboration with medical experts, such as physical therapists and sports medicine doctors, can increase the efficacy of injury prevention resources and give people access to specialized care when they need it.

Exercise selection: The guide should include advice on exercise selection and progression, as well as suggestions on exercise intensity, frequency, and duration.

Understanding injury risks: According to the Rössler et al. (2014), effective non-athlete injury prevention guide should cover the frequent injury risks connected to daily activities, such as falls, repetitive strain injuries, and overuse injuries.

Effective non-athlete injury prevention resources should cover injury prevention tactics like adequate warm-up and cool-down procedures and injury prevention education. The recommendations should also concentrate on particular injuries, offer advice on exercise adjustments, gradual increases in exercise volume and intensity, and work in conjunction with medical specialists.

3.3. The main themes, trends and patterns emerging from the literature

One key theme is the importance of evidence-based approaches. Effective physical activity promotion interventions for low-income individuals should be based on sound theoretical foundations and supported by empirical evidence (Zubala et al., 2017). Personal trainer training programs should be designed to incorporate evidence-based practices and provide practical skills and knowledge (Gonzalez et al., 2022). Injury prevention guide should be grounded in the latest research on risk assessment, exercise selection, and movement screening.

Another key theme is the importance of accessibility and inclusivity. Low-income individuals may face barriers to engaging in physical activity, such as lack of access to facilities and equipment. Physical activity promotion interventions should be designed to be accessible and inclusive, providing a range of opportunities for individuals with different abilities and interests (Zubala et al., 2017).

Personal trainer training programs should be designed to be accessible and affordable, with options for online learning and flexible scheduling (Kompf, 2014). Injury prevention guide should be designed to be user-friendly and easily implemented in everyday life.

A third key theme is the importance of sustainability. Effective physical activity promotion interventions for low-income individuals should be designed with sustainability in mind, incorporating strategies to promote long-term behavior change and engagement (Zubala et al., 2017). Personal trainer training programs should provide ongoing support and education to ensure continued professional development and success (Gonzalez et al., 2022). Injury prevention guide should include strategies to promote adherence and prevent injury recurrence.

Overall, the key themes, trends, and patterns that have emerged from the literature suggest that effective physical activity promotion interventions for low-income individuals require evidence-based approaches, accessibility and inclusivity, and sustainability. Personal trainer training programs and injury prevention guide should be designed to incorporate these key principles to maximize effectiveness and impact.

3.4. Research Questions

1. What are the barriers that low-income individuals face in engaging in physical activity, and how can these barriers be addressed?

According to a review of the research by Sallis et al. (2016), low-income people encounter a number of obstacles while trying to exercise. These obstacles include a lack of facilities, a lack of funding, a lack of time, and social and cultural issues.

Low-income people may not have access to safe and cheap exercise spaces, which is a major obstacle. According to the Eurostat, persons with low incomes are less likely to have access to sports facilities, with 29% of people in low-income households indicating that they do not, compared to 13% of those in high-income households.

Low-income people may struggle to buy gym memberships or workout equipment due to their limited financial means. According to research by Eurostat, persons with low incomes are less likely to engage in sports and physical exercise, with just 36% of people in low-income households doing so compared to 64% of those in high-income households.

For those with modest incomes, finding the time to engage in physical exercise might be challenging due to tight job schedules or family commitments. According to the Eurostat, time restrictions are a frequent reason why low-income people do not exercise, with 45% of those living in low-income families indicating that they do not have the time.

Low-income people may encounter stigma or prejudice because of their race, ethnicity, or financial background, which may be substantial social and cultural impediments. Social support and a feeling of belonging are crucial elements that might encourage physical exercise among those with low income. This emphasizes how crucial it is to provide welcoming and encouraging settings that encourage physical exercise and good living.

Communities may use a holistic strategy to overcome these obstacles, one that includes expanding access to secure and reasonably priced facilities, providing free or inexpensive exercise programs, and encouraging an inclusive and supportive culture. For instance, the European Commission (2008) suggests that localities invest in public infrastructure that encourages physical activity, provide free or inexpensive fitness programs, and create inclusive and inviting settings that prioritize physical exercise and healthy living.

In general, tackling the obstacles that low-income people must overcome in order to engage in physical activity requires a comprehensive and coordinated strategy that takes into account the particular difficulties and requirements of this demographic. Communities may assist low-income people prioritize physical exercise and enhance their general health and well-being by putting into practice evidence-based measures that expand access to resources, encourage inclusion, and foster support.

2. What are the effective strategies and methods for promoting physical activity and healthy lifestyles among low-income individuals?

Several approaches have been shown to be helpful in encouraging healthy behaviours and physical activity among those of lower socioeconomic status. These tactics and procedures include:

Providing inexpensive or no-cost exercise classes: Low-income people have more access to fitness programs that cost little to nothing. Free or low-cost fitness programs have been shown to enhance physical activity and improve health outcomes in low-income individuals.

Giving access to information and tools: Motivating those with lower incomes to prioritize physical activity requires providing them with education and resources on the benefits of physical activity and healthy lifestyles. Low-income people can benefit from increased levels of physical activity and better health outcomes if they are given access to knowledge and resources on physical activity and good food, as found in a study by De Cocker et al. (2015).

Making communities more welcoming: Individuals from lower socioeconomic backgrounds benefit greatly from the creation of welcoming spaces that encourage physical activity. Supportive surroundings that foster social support and a sense of community improve physical activity among low-income adults, according to research by Norman et al. (2013).

Interventions based on the use of technology: Promoting physical activity and healthy lifestyles among low-income folks can be accomplished with the help of technology-based treatments such as smartphone apps and wearable devices. Technology-based treatments boost physical activity and better health outcomes among low-income adults, a review by Sugarman et al. (2017) concludes.

Cooperating with local groups, such as churches and community centres, can be an efficient strategy for encouraging low-income people to engage in physical exercise and adopt healthier lives. Partnership with community organizations, according to a study by Durand et al. (2011), broadens low-income people's access to physical activity programs and fosters social support and a sense of community.

A multimodal strategy taking into account the specific difficulties and needs of this demographic is necessary for promoting physical activity and healthy lifestyles among low-income individuals. Communities may aid low-income individuals in making physical exercise a priority and boosting their health and well-being by implementing methods that are backed by research and expanding access to resources and creating supportive environments.

3. How can technology and social support be used to promote physical activity and healthy lifestyles among low-income individuals?

The promotion of physical activity and healthy lifestyles among those with low incomes can be accomplished with the help of technology-based interventions, such as wearable technology and smartphone apps. With characteristics including goal-setting, progress monitoring, and social support, these treatments offer low-income persons information and resources on physical exercise and healthy eating. Technology-based interventions, such as those for low-income people, are particularly effective at reaching disadvantaged populations, according to a review by Sugarman et al. (2017).

Text messaging is one successful technology-based intervention that encourages physical exercise and good living among low-income people. An intervention using text messages that targeted low-income women dramatically raised their levels of physical activity compared to a control group, according to a randomized controlled trial by Fjeldsoe et al. (2010). The SMS messages contained motivating remarks, goal-setting advice, and tailored feedback for the women.

Low-income people's social support is a significant factor in their motivation to exercise. A study by Norman et al. (2013) found that fostering circumstances that encourage social support and a sense of community raise physical activity levels among those with low income. The community-based programs that encourage physical activity and healthy lifestyles fall under this category, along with walking clubs and group exercise programs.

Promoting physical exercise and healthy lives among those with low incomes can be accomplished by fusing technology and social assistance. According to a study by Mak (2019), for instance, smartphone applications that offer social support and tailored feedback can be successful in encouraging physical exercise among low-income people. Social media websites are also utilized to link low-income people with others who have similar interests and objectives in relation to physical activity and healthy lifestyles. Promoting physical exercise and healthy lifestyles among those with low incomes can be accomplished with the help of technology and social assistance. Communities encourage physical activity and enhance health outcomes for this demographic by offering information, resources, and social support to low-income people.

4. What are the best practices for designing and implementing physical activity interventions for low-income individuals, and how can these be applied in the context of the HEPALIS project?

Interventions should be customized to the target population's unique requirements and interests. For instance, low-income people's needs and interests should be taken into consideration while designing physical activity interventions. Culturally-tailored physical activity interventions boost physical activity levels in low-income and ethnically diverse communities, finds a study by Zubala et al. (2017).

Utilize a multifaceted strategy: Low-income adults should get physical activity treatments using a multi-component strategy that incorporates a variety of activities and tactics to encourage physical activity and healthy lives. Multi-component treatments that include physical exercise, nutrition education, and behaviour modification tactics are successful in promoting healthy lifestyles among low-income people.

Offer social support: Promoting physical exercise among those with low incomes depends on social assistance. A study by Chang et al. (2008) found that low-income women who participate in group-based physical activity programs that offer social support engage in more physical activity.

Address participation barriers: Low-income people may encounter a variety of obstacles to engaging in physical activity, including a lack of time, a lack of access to facilities, and financial obstacles. A systematic study by Kollmorgen et al. (2019) found that interventions that remove participation obstacles, such as offering transportation and financial support, are successful in encouraging physical activity among those with low income.

Use technology to encourage motivation and engagement in physical activity interventions: Technology is utilized to encourage motivation and engagement in physical activity interventions. Technology-based interventions, such as smartphone apps and wearable gadgets, are successful in encouraging physical activity among low-income people, claims a systematic study by Direito et al. (2017).

Assess the success of interventions: It is important to assess the efficacy of physical activity programs for low-income people in encouraging physical activity and enhancing health outcomes. Evaluations of physical activity programs for low-income people should incorporate objective measurements of physical activity, such as accelerometry or pedometer data.

For low-income people to benefit from physical activity interventions, a comprehensive strategy that takes into consideration their particular needs and difficulties is necessary. The success of physical activity treatments for low-income people can be attributed to the use of culturally appropriate interventions, a multi-component approach, social support, addressing participation obstacles, technology, and evaluations.

The HEPALIS project employs best practices in a number of ways to develop and carry out physical activity interventions for low-income people.

Adapt interventions to the target population's unique needs and interests: The HEPALIS project creates culturally appropriate and appealing physical activity interventions by using the data gathered on the specific needs and interests of the target population, including low-income migrants and refugees, home-office workers, online university students, older people, physically disabled people, and housewives without an income.

Utilize a multifaceted strategy: The HEPALIS project employs a multi-component strategy that consists of a variety of initiatives and tactics to encourage physical activity and healthy living. This includes interventions like walking clubs, group exercise programs, and community-based programs that support physical activity and healthy lifestyles, as well as measures for behaviour modification and nutrition education.

Creating group-based physical activity interventions that promote social support and a sense of community among low-income people is how the HEPALIS initiative delivers social support. The project's website, personal trainer education courses, and volunteer-run fitness initiatives all offer social support.

Deal with participation obstacles: The HEPALIS project removes the obstacles that low-income people must overcome in order to participate by providing them with financial assistance, accessible opportunities, and transportation. This involves offering free or inexpensive equipment, providing online or remote options for physical activity, and locating secure and easily accessible places for physical activity.

The HEPALIS project encourages engagement and motivation among low-income individuals by employing technology-based interventions such as smartphone applications and wearable devices. The website platform of the project provides resources and information on healthy eating and exercise, as well as tools for setting objectives and tracking progress.

Assess the efficacy of physical activity interventions for low-income individuals using the HEPALIS project to measure the effects of interventions on physical activity levels and health outcomes. This involves monitoring changes in physical activity levels and other health metrics such as blood pressure and body mass index to refine and improve the project's remedies.

Utilizing the best practices for designing and implementing physical activity interventions for low-income people, the HEPALIS project generates effective, culturally-appropriate interventions that encourage physical activity and healthy lifestyles among low-income individuals.

5. What are the best practices for developing effective personal trainer training programs and injury prevention guide for non-athletes?

Best practices for developing effective personal trainer training programs

Include evidence-based training: Personal trainer education should be grounded in research, and it should take into account the most recent findings and recommended methods in the study of physical activity and exercise. Motivational interviewing and behaviour change techniques are among the evidence-based physical activity promotion strategies that should be the main focus of personal trainer training.

Practical training and hands-on experience should be a part of personal trainer education in order to ensure that instructors are equipped with the knowledge and abilities required to interact with clients in a productive manner. Personal trainer education should cover useful skills like client assessment, program design, and exercise instruction.

Continual mentoring and support should be given to personal trainers in order to aid in their long-term skill and knowledge development. Fielder (2009) study found that ongoing professional development opportunities and guidance from seasoned mentors should be a part of personal trainer training.

Place a strong emphasis on communication and motivational skills: Personal trainers should receive training in effective client communication as well as how to support clients' motivation to reach their fitness goals. According to a study by Gonzalez et al. (2022), training for personal trainers should emphasize effective communication, motivational interviewing, and goal-setting techniques.

Regarding cultural competence, personal trainers should receive training on how to communicate well with clients from different backgrounds and how to approach training and coaching in accordance with local customs. In order to help trainers interact with clients from different cultural backgrounds in an effective way, cultural competence training should be a part of personal trainer education.

Include business skills: In order to succeed as trainers, personal trainers should receive training in business concepts like marketing, sales, and customer service. In order to help trainers build successful and long-lasting careers in the fitness industry, personal trainer education also cover business skills.

Evidence-based practices, practical instruction and hands-on experience, ongoing support and mentoring, a focus on communication and motivational skills, an examination of cultural competence, and the inclusion of business skills training are all necessary when developing practical personal trainer training for the HEPALIS project.

Best practices for developing effective injury prevention guide for non-athletes

Giving out information that is supported by evidence is important; injury prevention guide should be based on the most recent studies and industry best practices. The information offered must be factual and backed up by empirical research.

The most frequent injuries that non-athletes are likely to sustain, such as back pain, knee pain, and shoulder pain, should be the focus of injury prevention guide. The information in guide should cover how to avoid these kinds of injuries as well as how to spot potential injury red flags.

Provide useful advice: Injury prevention guide ought to include useful advice that non-athletes can use to stay injury-free throughout their daily lives. This should include details on body mechanics, ergonomics, and good posture.

In injury prevention guide, it should be made clear how important physical activity is to both overall health and injury prevention. Guide should include information on the advantages of physical activity as well as tips for incorporating it into daily life.

Use easy-to-understand language: Injury prevention guide should be written in clear, succinct language that anyone can understand. Rather than using technical lingo, guide should concentrate on giving non-athletes useful information.

Include visual aids: To ensure that non-athletes are able to comprehend the information provided, injury prevention guide should include visual aids like illustrations and diagrams. Visual aids can also make the guide more interesting and approachable.

The target population's cultural and linguistic diversity should be taken into account when creating injury prevention materials. The resource should be available in a variety of languages and should consider how cultural variations in health practices and beliefs may exist (Berger et al., 1994).

Assess effectiveness: In order to ascertain how well injury prevention resources work, they should be assessed. To evaluate the effect of the guide on injury prevention knowledge and behaviour, surveys, interviews, or other techniques can be used.

In conclusion, creating effective injury prevention materials for non-athletes requires providing data-backed information, concentrating on common injuries, offering helpful advice, highlighting the value of the physical activity, using clear and concise language, including visual aids, taking into account cultural and linguistic diversity, and assessing the effectiveness of the guide.

6. How can gamification be effectively used to increase physical activity and promote healthy lifestyles among low-income individuals?

Use incentives to encourage people to adopt healthy behaviours. According to Sardi et al. (2017), gamification is successful at encouraging people to engage in physical activity and healthy lifestyles. Incentives like points, rewards, or badges can help with this.

Give individuals immediate feedback: Gamification gives people immediate feedback on how they're doing in terms of reaching their health goals, which encourages them to keep up their healthy habits (Sardi et al., 2017).

Make it social: According to Morrison et al. (2014), social features that encourage competition or teamwork with others, such as leaderboards or challenges, can increase the engagement of gamification.

Include real-world activities: According to Morrison et al. (2014), gamification is more successful when it includes activities that people can actually do in the real world, such as cycling or walking.

Personalize the experience: According to Morrison et al. (2014), gamification is more effective when it is tailored to a person's interests, preferences, and capabilities in order to increase motivation and engagement.

Use game-based learning: Gamification is used to encourage students to learn about healthy behaviours and lifestyle choices through game-based learning, which can be more interesting and successful than conventional educational methods (Sardi et al., 2017).

The effectiveness of gamification interventions should be assessed in order to ascertain how well they work to encourage low-income people to lead active, healthy lives. To evaluate the impact of the intervention on physical activity and health behaviours, surveys, interviews, and other techniques are used (Sardi et al., 2017).

By using incentives, providing quick feedback, incorporating social features, incorporating real-world activities, personalizing the experience, using game-based learning, and evaluating effectiveness, a gamification is an effective tool for encouraging healthy lifestyles and increasing physical activity among low-income people.

7. What are the key success factors for implementing sustainable physical activity promotion initiatives for low-income individuals?

Collaborative partnerships: By giving low-income people access to resources, knowledge, and support, collaborative partnerships between community organizations, health professionals, and policymakers promote sustainable physical activity promotion initiatives (Thomas & McKenzie, 2016).

Engagement in the community: Successful physical activity promotion programs for low-income people depend on community engagement. Initiatives are adapted to the particular needs and preferences of the community by involving community members in the planning and implementation process (Thomas & McKenzie, 2016).

Addressing cultural and social barriers: Programs promoting physical activity for low-income people should take into account the cultural and social obstacles that some may face in doing so. In order to overcome these obstacles, strategies should be put in place, such as offering culturally relevant programs or addressing social norms that discourage physical activity (do Amaral et al., 2017).

Access to facilities and resources is crucial for encouraging low-income people to engage in sustained physical activity (Thomas & McKenzie, 2016). Examples of such facilities and resources include accessible parks or reasonably priced fitness equipment.

Interventions should be customized to the unique needs and preferences of people with low income. This entails giving tailored support or tailoring interventions to the particular difficulties low-income people face, like time restraints or a lack of transportation (do Amaral et al., 2017).

Continuous evaluation: Low-income people's physical activity promotion programs should be continuously assessed to determine their efficacy and pinpoint areas for improvement. To evaluate the initiative's effects on levels of physical activity and health outcomes, surveys, interviews, or other techniques should be used (Thomas & McKenzie, 2016).

Sustainability planning: To ensure the long-term success of initiatives to promote physical activity among those with low incomes, sustainability planning should be incorporated into their design. This entails finding potential funding sources, forming alliances with neighbourhood organizations, or putting in place regulations that support initiatives to promote physical activity (do Amaral et al., 2017).

Collaboration, community involvement, removing social and cultural barriers, accessibility to facilities and resources, tailored interventions, ongoing evaluation, and sustainability planning are key success factors for implementing sustainable physical activity promotion initiatives for low-income people.

8. What are the key factors that contribute to permanent behavioral change in physical activity practice among low-income individuals?

Self-efficacy: Self-efficacy, or the belief in one's capacity for physical exercise, is a crucial component in encouraging long-term behavioural change. According to research by De Jesus (2022), interventions that emphasize boosting self-efficacy are successful in encouraging low-income people to engage in sustained physical activity.

Social support: Social support, such as assistance from friends, family, or a personal trainer, encourages low-income people to engage in continuous physical activity. According to studies (De Jesus, 2022), social support-based interventions have been proven to be successful in encouraging long-term physical exercise.

Specifying goals Low-income individuals benefit from persistent physical exercise when they set attainable goals and monitor their progress toward achieving them. According to research by De Jesus (2022), goal-setting and tracking-based interventions are successful at encouraging long-term physical activity.

Building habits: According to Mendoza-Vasconez et al. (2016), interventions that encourage the development of healthy habits—such as integrating physical exercise into daily routines or encouraging active transportation—help low-income people engage in sustained physical activity.

Environments that are supportive: According to Mendoza-Vasconez et al. (2016), fostering environments that are supportive encourages sustained physical activity among low-income people by giving them access to safe and accessible parks and supporting active transportation through infrastructure upgrades.

Support that never ends: Encouraging low-income people to stay active over time by giving them constant encouragement, such as follow-up calls or messages, is effective. According to research by De Jesus (2022), prolonged physical activity can be encouraged through interventions that offer ongoing support.

In conclusion, self-efficacy, social support, goal-setting, targeted interventions, creating habits, supporting surroundings, and ongoing support are the main elements that influence low-income individuals' persistent behavioural changes in their practice of physical activity.

9. What are the key components of an effective injury prevention guide for non-athletes?

An efficient guide to injury prevention for non-athletes should include clear instructions on the proper technique for exercises or other activities. This entails demonstrating appropriate form using visual aids or videos (Alba-Martín et al., 2015).

Gradual progression of difficulty: Exercises or activities should be gradually more difficult as part of a non-athlete injury prevention guide. According to Emery et al. (2017), this entails beginning with simpler exercises or activities and gradually increasing intensity or difficulty over time.

An effective injury prevention guide for non-athletes should include information on risk factors for particular injuries as well as injury prevention. This entails disclosing details on frequent injuries connected to particular activities as well as prevention techniques. Exercises for flexibility and mobility: To increase the range of motion and lower the risk of injury, a successful injury prevention program for non-athletes should include flexibility and mobility exercises. This entails including foam rolling or stretching exercises in the instruction manual (Alba-Martín et al, 2015).

Emphasis on appropriate warm-up and cool-down: An efficient non-athlete injury prevention guide should stress the value of appropriate warm-up and cool-down to lower the risk of injury. According to Emery et al. (2017), this entails offering particular warm-up and cool-down exercises or activities.

Personalized advice: A successful non-athlete injury prevention guide should offer personalized advice based on each user's needs or objectives. This entails modifying exercises or activities for people with injuries or limitations or creating custom workout programs for particular populations.

In conclusion, clear instructions on proper technique, a gradual increase in difficulty, education on injury prevention and risk factors, flexibility and mobility exercises, an emphasis on proper warm-up and cool-down, and personalized recommendations are the essential elements of an effective injury prevention guide for non-athletes

10. What are the key components of an effective personal trainer boot camp training curriculum?

Anatomy and physiology: An effective personal trainer boot camp training curriculum should provide a solid foundation in anatomy and physiology. This involves covering topics such as muscle and joint function, energy systems, and biomechanics.

Exercise programming: An effective personal trainer boot camp training curriculum should include instruction on exercise programming for different populations, such as older adults or individuals with chronic conditions. This involves teaching trainers how to design safe and effective exercise programs based on individual needs and goals (Nindl et al., 2017).

Nutrition and weight management: An effective personal trainer boot camp training curriculum should include instruction on basic nutrition principles and weight management strategies. This involves covering topics such as macronutrient needs, energy balance, and behaviour change strategies.

Soft skills training: An effective personal trainer boot camp training curriculum should provide training on soft skills, such as communication and motivational interviewing. These skills are essential for developing positive relationships with clients and promoting behaviour change (Nindl et al., 2017).

Business skills training: An effective personal trainer boot camp training curriculum should provide training on business skills, such as marketing and business planning. These skills are essential for personal trainers to establish and grow their businesses.

Practical experience: An effective personal trainer boot camp training curriculum should provide practical experience to prepare trainers for real-world situations. This involves incorporating role-playing exercises or providing opportunities for trainers to work with clients (Nindl et al., 2017).

The key components of an effective personal trainer boot camp training curriculum include anatomy and physiology, exercise programming, nutrition and weight management, soft skills training, business skills training, and practical experience.

11. How can personal trainer boot camps be made more accessible and appealing to personal trainers?

Online delivery: Personal trainer boot camps should be made more accessible by offering them in an online format. This involves providing webinars, online courses, or video-based training modules.

Flexible scheduling: Personal trainer boot camps should be made more appealing to personal trainers by offering flexible scheduling options. This involves offering boot camps during evenings or weekends, or providing self-paced learning opportunities.

Interactive and engaging content: Personal trainer boot camps should be made more appealing to personal trainers by offering interactive and engaging content. This involves incorporating quizzes, games, or other interactive activities into the training curriculum.

Relevant and up-to-date information: Personal trainer boot camps should be made more appealing to personal trainers by providing relevant and up-to-date information. This involves incorporating the latest research and trends in the fitness industry into the training curriculum.

Networking opportunities: Personal trainer boot camps should be made more appealing to personal trainers by providing networking opportunities. This involves facilitating connections between personal trainers or providing opportunities for peer-to-peer learning and collaboration.

Personal trainer boot camps should be made more accessible and appealing to personal trainers by offering online delivery, flexible scheduling, interactive and engaging content, relevant and up-to-date information, and networking opportunities.



4. Discussion

4.1. Discussion of the trends and patterns in the literature and how they relate to the research questions

The goals of this review's research questions are to determine what prevents people from being physically active, what are the best methods for promoting physical activity and healthy lifestyles, and how to design and carry out interventions.

One recurring theme in the literature is the significance of addressing the particular obstacles low-income people encounter when trying to engage in physical activity. The absence of facilities, a lack of funding for equipment, and competing time demands are some of these obstacles (Zubala et al., 2017; Jefferis et al., 2014). Incorporating physical activity into daily routines, offering support for time management, and granting low-cost or free access to facilities and equipment are all effective ways to overcome these barriers (Zubala et al., 2017; Jefferis et al., 2014).

Technology and social support have become crucial tools for encouraging low-income people to lead active lifestyles and healthy diets. While technology can offer access to resources, facilitate communication, and encourage feedback, social support offers motivation and accountability (Coughlin et al., 2015; Morrison et al., 2014). According to Coughlin et al. (2015), tailored and personalized interventions frequently include these components.

It's important to concentrate on sustainability and long-term behaviour change when creating and implementing effective physical activity interventions for low-income people. Effective interventions frequently combine both individual and group tactics, such as social support, education, and environmental changes (Zubala et al., 2017 ; Jefferis et al., 2014). The best practices for designing and implementing interventions in the context of the HEPALIS project should be guided by evidence-based strategies and tailored to the needs of the particular target population.

According to Kompf (2014), effective personal trainer training programs and injury prevention guide should include evidence-based practices and be simple to use. According to Coughlin et al. (2015), gamification has become a promising tool for encouraging physical activity and healthy lifestyles, particularly among low-income people.

According to the major themes and trends found in the literature, in order to effectively promote physical activity among low-income people, interventions must address specific barriers, take advantage of technology and social support, and work to change people's behaviours over the long term. The best practices for designing and implementing interventions, personal trainer training programs, and injury prevention guide should be supported by evidence-based approaches and tailored to the specific needs of the target population.

4.2. Presentation of the key themes or patterns emerging from the literature review, specifically related to the preparation of the Boot camp curriculum for personal trainers

Effective personal trainer training programs play a crucial role in promoting physical activity and healthy lifestyles among low-income individuals. Based on the literature review conducted, the following key themes and patterns emerged related to the preparation of the Boot camp curriculum for personal trainers:

Design of the curriculum: Personal trainer training should provide a comprehensive understanding of exercise science, exercise programming, anatomy, and physiology. Additionally, the training should cover communication skills, motivational techniques, and behaviour change strategies to effectively engage and support clients.

Incorporating cultural competency: Personal trainers should be trained to work with clients from diverse backgrounds and to understand and respect their cultural differences. The training should include topics such as cultural sensitivity, diversity, and inclusion, to provide a more supportive and culturally appropriate environment for low-income individuals.

Use of technology: Incorporating technology into personal trainer training can enhance the training experience, increase accessibility and flexibility, and improve the effectiveness of training. For example, the use of virtual reality and simulators provide a realistic training experience and help trainers develop skills in a controlled environment.

Integration of business and marketing skills: Personal trainers should be equipped with business and marketing skills to build their own successful training businesses. Topics such as budgeting, marketing, and legal issues should be included in the curriculum to ensure trainers have the necessary skills to operate effectively in the industry.

Ethical considerations: Personal trainers should be trained to adhere to ethical and professional standards in their interactions with clients. Topics such as confidentiality, informed consent, and appropriate boundaries should be covered in the training to ensure trainers provide a safe and supportive environment for clients. (Mak, 2019)

An effective personal trainer boot camp curriculum should provide a comprehensive understanding of exercise science, effective communication and motivational techniques, cultural sensitivity, the use of technology, business and marketing skills, and ethical considerations. By incorporating these key themes and patterns, personal trainers can be better equipped to promote physical activity and healthy lifestyles among low-income individuals and achieve the objectives of the HEPALIS project.

4.3. Discussion of the implications of the findings for the Boot camp curriculum for personal trainers and the Injury Prevention Guide for Non-Athletes

A thorough review of the literature on personal trainer education and non-athlete injury prevention has produced a number of significant results that will have a significant impact on the creation of the personal trainer boot camp curriculum and the non-athlete injury prevention guide.

The significance of taking into account the particular requirements and difficulties faced by low-income people when designing physical activity interventions is one of the study's primary results. Due to a lack of access to secure and cheap facilities, a lack of free time, and insufficient social support, low-income people frequently encounter substantial obstacles to participating in physical activity. As a result, the Injury Prevention Guide for Non-Athletes and the Boot Camp curriculum for personal trainers ought to contain techniques that are specifically suited to this population's requirements and that encourage social support and inclusivity.

Another crucial result is how gamification and technology can encourage healthy lives and improve physical activity among low-income people. The research indicates that utilizing technology-based interventions, such as wearable technologies and mobile apps, can assist in tracking progress, giving feedback, and motivating people to keep up their exercise routines. Gamification strategies like challenges and prizes also encourage people to engage in more physical activity. As a result, the Injury Prevention Guide for Non-Athletes and the Boot Camp curriculum for personal trainers benefit from the addition of technology and gamification components, which boost their effectiveness.

When developing physical activity interventions, the research emphasizes the significance of putting a strong emphasis on behavioural modification and forming enduring habits. Studies have indicated that interventions that encourage gradual and lasting lifestyle changes, such as goal-setting that is doable and ongoing support, are more likely to produce long-term behavioural change. In order to prevent injuries among non-athletes, the Injury Prevention Guide for Non-Athletes and the Boot Camp Curriculum for Personal Trainers should both incorporate tactics aimed at fostering long-lasting behavioural change.

A strong emphasis on business knowledge and entrepreneurship should be a part of effective personal trainer training programs, according to the literature, as these abilities are necessary for personal trainers to develop successful careers and contribute to the long-term sustainability of the fitness industry. So instruction in these abilities should be part of the personal trainer boot camp curriculum.

Numerous important conclusions and their significance for the creation of the Personal Trainer Boot Camp curriculum and the Injury Prevention Guide for Non-Athletes have been highlighted by the literature review. By incorporating these findings into the design and implementation of these interventions, they can be more effective in promoting physical activity, preventing injuries, and creating sustainable healthy habits among low-income individuals.

The background features a central white area with a complex, multi-faceted geometric pattern in shades of light gray. This central area is framed by four solid-colored quadrants: dark gray in the top-left and bottom-left, and orange in the top-right and bottom-right.

5. Evaluation of Relevant Literature

5.1. Consideration of the overall quality of the evidence base and relevance to the preparation of the Boot camp curriculum for personal trainers

There is a substantial body of literature on best practices for personal trainer training, which contributes to the relatively strong evidence base supporting the development of the Boot camp curriculum for personal trainers. However, there are some restrictions and holes in the evidence base that must be taken into account.

The education and experience of the trainers may have an impact on the efficacy of personal trainer training programs. Personal trainers with more experience and a higher level of education were more likely to deliver effective training and form enduring relationships with clients. In order to guarantee that trainers are qualified to offer top-notch training services, this suggests that personal trainer training programs should include education and experience requirements for trainers.

Other studies have emphasized the significance of including hands-on practice and practical instruction in personal trainer training programs (Jung, 2013). Jung discovered that personal trainers who received more hands-on instruction were more competent and assured in their capacity to offer high-quality training programs. As a result, it is recommended that personal trainer training programs include practical training components, such as supervised training sessions or internships, to guarantee that trainers are suitably qualified to provide training services.

In addition to technical education, research suggests that personal trainers need to be well-versed in entrepreneurship and business acumen in order to succeed in the field. Personal trainers are more likely to succeed in the industry, if they can effectively market and promote their services, handle money, and create business plans. This emphasizes the requirement for business and entrepreneurship education to be included in personal trainer training programs in order to ensure that trainers are ready to succeed in the industry.

There is a ton of information on personal trainer training, but there isn't agreement on the specific elements that ought to be covered in a Boot camp curriculum. According to some studies, boot camps ought to include practical training, like closely supervised training sessions, to make sure that instructors are suitably qualified to deliver instruction (Jung, 2013). Other studies contend that in order to ensure that trainers are equipped to succeed in the field, boot camps should include business and entrepreneurship. Further investigation is required to identify the most efficient methods for developing and executing personal trainer training programs as well as for incorporating injury prevention and healthy lifestyle promotion into these programs.

Although there is a solid body of evidence supporting the development of a boot camp curriculum for personal trainers, there are still some restrictions and gaps that require further investigation. Although the available literature can offer helpful insights and direction for creating effective personal trainer training programs, it is crucial to take the needs and context of the HEPALIS project into account when creating the Boot camp curriculum.

5.2. Consideration of the overall quality of the evidence base and relevance to the preparation of the Injury Prevention Guide for Non-Athletes

With a growing amount of research on the best practices for injury prevention in different demographics, the evidence base for the creation of the Injury Prevention Guide for Non-Athletes is likewise fairly robust. But it's important to take into account the evidence base's constraints and inadequacies.

According to certain research, non-athlete injury prevention guide should instruct readers on good form and technique for exercises (Kim et al., 2015). For instance, a study by Kim and colleagues discovered that instructing exercisers on good form and technique can greatly lower the chance of injury. This suggests that instructional elements focusing on good exercise form and technique should be included in injury prevention guide.

Other studies have emphasized the significance of including exercises that concentrate on particular muscle groups and target typical weak points and imbalances (Lehman, 2006). Exercises that target particular muscle areas can assist increase strength and mobility, which can lower the chance of injury, according to research by Lehman. This suggests that workouts that target particular muscle groups and treat frequent areas of weakness and imbalance should be included in injury prevention guide.

Evidence suggests that injury prevention guide should include encouraging healthy lifestyle practices, such as appropriate nutrition and enough rest, in addition to exercise-specific components (Finch, 2006). According to Finch, people who practised healthy living practices were less likely to have injuries when exercising. This emphasizes the necessity of including information on healthy lifestyle practices in injury prevention guide to make sure that people are appropriately prepared to engage in physical activity without danger of harm.

Although there is a growing body of research on injury prevention in many populations, more study is required to identify the most efficient methods for creating non-athlete injury prevention guide. Studies are required that concentrate on the context and particular needs of the low-income population and how injury prevention guidelines might be modified to address those needs.

The Injury Prevention Guide for Non-Athletes was developed using a solid evidence base, but there are still certain restrictions and gaps that require filling through additional study. When creating successful injury prevention guidelines, the available literature can offer insightful advice, but it's crucial to take the HEPALIS project's unique requirements and context into account.

5.3. Evaluation of the strengths and limitations of the literature reviewed

The literature reviewed on the topics of physical activity promotion, personal trainer training, injury prevention, and healthy lifestyle promotion among low-income individuals has both strengths and limitations.

Strengths:

- The literature provides a wide range of evidence-based strategies and best practices for promoting physical activity and healthy lifestyles among low-income individuals.
- The literature identifies a number of barriers and challenges that low-income individuals face in engaging in physical activity and provides insights into how these barriers can be addressed.
- The literature provides guidance on the key components and best practices for designing and implementing effective personal trainer training programs and injury prevention guide.
- The literature highlights the importance of incorporating technology, social support, and gamification into physical activity promotion initiatives to increase their effectiveness.
- The literature emphasizes the need for sustainable and community-based approaches to physical activity promotion that engage low-income individuals and address their unique needs.

Limitations:

- Some of the literature is based on small sample sizes or limited geographic regions, which may limit the generalizability of the findings.
- There is a lack of consensus on the specific components that should be included in personal trainer training programs and injury prevention guide, which can make it challenging to develop effective and comprehensive programs.
- There is a need for further research on the effectiveness of different types of technology and social support interventions for promoting physical activity and healthy lifestyles among low-income individuals.
- There is a need for more research on the long-term impact and sustainability of physical activity promotion initiatives, particularly in low-income communities.

While the literature reviewed provides a strong evidence base for promoting physical activity and healthy lifestyles among low-income individuals, there is still a need for further research and consensus-building to ensure the effectiveness and sustainability of these initiatives.



6. Conclusion

The HEPALIS project attempts to encourage low-income people to lead active lifestyles and nutritious diets. The challenges to physical activity that low-income people must overcome as well as successful strategies and tactics for encouraging physical activity and good lifestyles among this population have been examined in this research review. This review has also covered the best methods for developing and executing physical activity interventions for low-income people, as well as how technology and social support can be used to promote physical activity and healthy lives.

With a growing amount of research on the best strategies for increasing physical activity and healthy lifestyles in this demographic, the evidence foundation for the promotion of physical activity among low-income people is generally robust. However, there are still significant restrictions and gaps in the body of data that must be taken into account, particularly in light of the unique requirements and setting of the low-income population. Financial limitations, lack of access to facilities, and time restraints are just a few of the obstacles that low-income people must overcome in order to engage in physical activity, according to the research review. A multifaceted strategy is needed to overcome these obstacles, including expanding access to reasonably priced physical activity options, educating people about healthy lifestyle choices, and addressing the social and cultural factors that have an impact on low-income people's participation in physical activity.

Effective tactics and ideas for encouraging exercise and healthy lives include:

The literature review has found various successful community-based initiatives, social support, and technology-based interventions as means of encouraging physical activity and healthy lifestyles among low-income people. These tactics should be developed to meet the particular obstacles and difficulties that low-income people have while trying to engage in physical activity. They should be adapted to the particular needs and circumstances of the low-income community.

Technology and social support: Technology and social support can be effective instruments for encouraging low-income people to engage in physical exercise and lead healthy lifestyles. Technology-based interventions, such as wearables and mobile apps, can offer affordable and convenient ways to monitor physical activity and offer encouragement and feedback. By offering responsibility and encouragement, social support from friends, family, and neighbourhood groups can be a powerful tool for promoting physical exercise and healthy lives.

Designing and implementing physical activity interventions:

The literature review has highlighted the importance of designing and implementing physical activity interventions that are tailored to the specific needs and context of the low-income population. Effective interventions should incorporate education on healthy lifestyle habits, provide access to affordable physical activity options, and address the social and cultural factors that influence physical activity participation among low-income individuals.

Boot camp training curriculum: In the context of the Boot camp training curriculum specifically, the literature review has examined the best practices for creating efficient personal trainer training programs and injury prevention guide for non-athletes. .

To make sure that trainers are sufficiently qualified to deliver high-quality training services, effective personal trainer training programs should include educational and experience prerequisites in addition to practical training components. Exercises that target particular muscle groups and address common areas of weakness and imbalance should be the main focus of injury prevention guide. They should also advocate for healthy lifestyle habits.

Gamification: The literature review has also looked at how gamification can be used to encourage low-income people to engage in physical activity and lead healthy lives. Point systems, rewards, and social support are examples of gamification strategies that can encourage and motivate people to exercise.

Key success factors for implementing sustainable physical activity promotion initiatives for low-income individuals have also been identified by the literature review, and they include community involvement, stakeholder involvement, long-term planning, and evaluation.

Overall, the literature review emphasizes the significance of addressing the obstacles that low-income people encounter when trying to promote healthy lifestyles and physical activity. The review shows that there are practical approaches for encouraging physical activity and healthy living among low-income people, such as gamification, technology integration, social support, and designing and implementing physical activity interventions.

In order to lower the risk of injury while engaging in physical activity, the literature review also highlights the need for injury prevention guide for non-athletes. The review shows that effective injury prevention guide should focus on providing education and guidance on proper form and technique during exercises, incorporating exercises that target specific muscle groups and address common areas of weakness and imbalance, and promoting healthy lifestyle habits. The literature review emphasizes the need for trainers to possess a strong understanding of business acumen and entrepreneurship in addition to technical training in terms of personal trainer training. The review also emphasizes how crucial it is for personal trainer training programs to include hands-on practice and practical instruction.

Although there is a fair amount of evidence supporting these topics, there are still some restrictions and gaps in the literature that require filling through additional study. Studies are specifically needed that concentrate on the particular context and needs of low-income people and how injury prevention guide and personal trainer training programs can be modified to meet their specific needs.

In summary, the HEPALIS project can profit from the results of this literature review by incorporating efficient methods and strategies for promoting physical activity and healthy lifestyles, creating and utilizing injury prevention guide, and creating efficient personal trainer education programs. By conducting additional research on the particular requirements and context of low-income people and creating tailored interventions to promote physical activity and healthy lifestyles, the HEPALIS project can also help close gaps in the literature. The HEPALIS project can enhance the general health and well-being of low-income people and communities by addressing the barriers and promoting physical activity and healthy lifestyles.

6.1. Based on the literature review, suggestions of the contents for the Injury Prevention Guide for Non-Athletes.

I. Introduction

- Purpose of the guide
- Importance of injury prevention
- Target audience

II. Understanding Common Injuries

- Overview of common injuries among non-athletes
- Causes and risk factors for injuries
- Signs and symptoms of injuries

III. Prevention Strategies

- Proper exercise form and technique
- Exercises targeting specific muscle groups
- Warm-up and cool-down routines
- Progression and modification of exercises
- Proper footwear and equipment
- Rest and recovery
- Recap of key points
- Importance of injury prevention for non-athletes
- Encouragement to implement injury prevention strategies in daily life.

IV. Nutrition and Hydration

- Importance of proper nutrition and hydration for injury prevention
- Recommendations for healthy eating and hydration habits
- Supplements and their role in injury prevention

V. Self-Care Techniques

- Importance of self-care in injury prevention
- Techniques for self-massage and foam rolling
- Stretching and mobility exercises
- Rest and recovery techniques

VI. Developing an Injury Prevention Plan

- Recap of key points
- Importance of injury prevention for non-athletes
- Encouragement to implement injury prevention strategies in daily life.

VII. Conclusion

- Recap of key points
- Importance of injury prevention for non-athletes
- Encouragement to implement injury prevention strategies in daily life.

6.2. Based on the literature review, recommended modules for the boot camp curriculum for personal trainers

Module 1: Introduction to physical activity and health

- Importance of physical activity for overall health and wellbeing
- Benefits of physical activity for low-income individuals
- Basic principles of exercise science and physiology

Module 2: Client assessment and goal setting

- Methods for assessing client fitness level, health history, and exercise preferences
- Setting realistic and achievable goals with clients
- Communication and motivational techniques for working with low-income individuals

Module 3: Exercise programming and instruction

- Designing safe and effective exercise programs for low-income individuals
- Instruction on proper exercise form and technique
- Strategies for incorporating different types of exercise (e.g. cardio, strength training, flexibility) into training programs

Module 4: Injury prevention and management

- Identifying common injuries and risk factors for low-income individuals
- Strategies for preventing injuries during exercise
- Techniques for managing injuries and minimizing downtime

Module 5: Nutrition and lifestyle education

- Basics of healthy nutrition and meal planning on a budget
- Strategies for incorporating healthy eating habits into daily life
- Importance of sleep, stress management, and other lifestyle factors for overall health and wellbeing

Module 6: Business and entrepreneurship skills

- Marketing and promoting personal training services
- Financial management and budgeting for personal trainers
- Developing a business plan and networking in the industry

Module 7: Use of technology and social support

- Integrating technology (e.g. fitness apps, wearable devices) into personal training services
- Strategies for using social support and peer networks to promote physical activity and healthy lifestyle habits
- Identifying and overcoming barriers to technology and social support access for low-income individuals

6.3. Based on the literature review, here are some suggestions for the development of a gamification-based physical activity mentoring, training, and online sports web platform for low-income individuals:

1. Personalized fitness plans should be offered via the web platform, taking into account each user's fitness level, health, and goals. To make sure that the fitness plans are realistic and enduring, they should be customized to the demands and capabilities of the individual.
 2. Provide a range of options for physical exercise: To accommodate various preferences and fitness levels, the platform should offer a range of options for physical activity. This includes workout videos, virtual classes, and outdoor activity challenges.
 3. Offer resources for education: Giving people access to educational materials on good exercise form and technique as well as on healthy lifestyle practices like proper diet and rest can help lower the chance of injury and enhance physical health in general.
 4. Integrate wearable technology: The platform can incorporate wearable technology, such as fitness trackers and smartwatches, to give users real-time feedback on their exercise and progress toward their objectives.
 5. Collaborate with local community groups: Collaborating with local community groups can aid in platform promotion and broaden its appeal to people with limited financial resources. In-person events and workshops are just two examples of the extra assistance and resources that these organizations may offer users.
 6. Gamification components: To entice and keep visitors using the website, gamification components like points, badges, and leaderboards should be included. These components can be used to monitor development, offer comments, and foster a sense of community and competition.
 7. Social Support: The web platform should include social support features, such as a community forum, social media integration, and virtual coaching, to encourage social interaction and accountability. Users can connect with others who share similar interests and goals and receive support and encouragement from virtual coaches.
 8. Resources and information on nutrition and healthy lifestyle choices should be made available on the web platform in order to support the objectives for physical activity. To support their workout routines, users may obtain recipes, meal planning, and advice on developing healthy dietary and lifestyle habits.
 9. Injury Prevention: To guarantee that users participate in physical activity safely, the web platform should offer information on injury prevention. Users should access information on proper form and technique during exercises, exercises targeting specific muscle groups, and injury prevention strategies.
 10. Include individualized goal-setting and tracking tools Personalization has been proven to be a successful tactic for encouraging physical activity among low-income persons. The platform can offer a sense of success and encouragement to keep up physical exercise by enabling users to set individual goals and monitor their progress towards those goals.
 11. User-friendly Design: The web platform should have a straightforward, accessible design that is user-friendly. To ensure that users may access it anywhere, at any time, the platform needs to be available from a variety of devices, including mobile ones.
- The website should be created in a way that offers low-income people a comprehensive approach to physical exercise and healthy living. The web platform should encourage people to be physically active, improve their health, and live healthier lives by incorporating gamification elements, social support, personalized fitness plans, nutrition and lifestyle education, injury prevention, progress tracking, and an intuitive design.



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