



Research Paper

Exploring The Evaluation And Challenges Of Fin Swimming: Strategies For Advancement And Recognition

YUELONG WU

ABSTRACT

This study explored the evaluation and challenges of fin swimming leading to formulation of strategies for advancement and development in its current field along with public recognition such as the key evaluation criteria used to assess performance and the challenges encountered that impact the training methods and performance outcomes in fin swimming. Additionally, it determines how can mental preparation and psychological resilience play in overcoming challenges in fin swimming leading to optimizing performance evaluation and the strategies can be formulated to enhance the field development and public recognition of fin swimming as a competitive sport. The study utilized three coaches, three government agencies, and five athletes involved in fin swimming in China. Coaches must have at least one year of experience teaching fin swimming at public or private schools or universities. Athletes must be at least 19 years old and have competed in fin swimming. The study concludes that tracking metrics and adjusting strategies, along with high-level training, experienced coaches, government support, and international competition updates, are crucial for enhancing the competitive edge of fin swimmers. It also highlights the importance of addressing challenges like limited training resources, mental preparation, and psychological resilience to optimize performance, suggesting the need for improved training programs, grassroots talent cultivation, technology use, and better publicity for fin swimming.

Keywords: *sports app physical education fin swimming experimental*

*Received 15 Aug., 2024; Revised 28 Aug., 2024; Accepted 31 Aug., 2024 © The author(s) 2024.
Published with open access at www.questjournals.org*

I. INTRODUCTION

A comprehensive exploration of the sport's nuances and obstacles contribute to the advancement of fin swimming as a competitive discipline. It is a unique underwater sport that combines swimming with the use of fins that is known for how it blends athleticism and technical skill. The evaluation and challenges faced by fin swimmers, coaches, sports scientists, government and other stakeholders as regards to technique, training methods, equipment optimization, and competitive strategies impacts the physiological demands, biomechanics, and performance metrics leading to a deeper understanding of this unique underwater sport.

Fin swimming is a technique that involves the use of swim fins for propulsion that has effects on performance, stroke mechanics, and training benefits. According to De Matos, et. al., (2023), fin swimming can significantly impact swimming performance as to kinematics, arm stroke efficiency, coordination patterns and energy cost. Different leg-kicking techniques, such as dolphin, flutter, and breaststroke kicks with and without diving gear indicates that the dolphin kick without diving gear demonstrated the highest average swimming velocity and the most advantageous economy of propulsion at a given velocity. Hence, the present study is relevant as it focuses on the evaluation and challenges to address and suggests specific fin swimming techniques that can be tailored to achieve different performance goals. The Chinese Taipei Olympic Committee has been actively involved in promoting various sports events, including water sports like fin swimming and collaborated with local organizations to host events like the 2020 Kinmen Sea Swimming Event Beach Snatching. Hence, Chinese community has increase involvement in water sports, sustainability efforts, educational programs, and community engagement reflects its commitment to promoting sports excellence and fostering a culture of environmental responsibility within the sporting community.

Swimming with fins resulted in higher velocity, stroke length, and lower kick amplitude compared to swimming with paddles or without equipment. Fins modified stroke phases durations, emphasizing lower propulsion time during the stroke which leads to more efficiency. Using paddles or fins demonstrated higher arm stroke efficiency than swimming without equipment that enhance the effectiveness of arm strokes during

swimming. Fins altered coordination patterns is indicating a catch-up pattern of coordination which shows how fins influence the coordination of upper limbs during swimming. Swimming with fins significantly increased the estimated energy cost compared to swimming without equipment or with paddles wherein the use of fins imposes a higher energy demand on swimmers, potentially enhancing the workout intensity.

The importance of conscious modifications in propulsion technique to control swimming performance effectively leads to better training benefits (Leroy, 2023). Swimming with fins offer advantages such as reduced strain on shoulders during training, improved power and speed, better kicking technique, and enhanced body position. However, it is crucial to use swim fins strategically to avoid them becoming a crutch or negatively impacting stroke mechanics. This type of training can be beneficial for improving endurance and overall performance in fin-swimmers across different age groups. Hence, the present study is timely because fin swimming, when combined with proper training techniques like imagery training and strategic use of equipment like fins, can significantly enhance athletes' performances by improving kicking strength, body position, stroke mechanics, and overall efficiency in the water. It is essential for athletes to balance the benefits of swimming with fins with considerations like energy cost and maintaining proper stroke mechanics to optimize their training and performance outcomes. Moreover, coaches and other related stakeholders can also benefit for the high-performance results of the athletes.

From a coaching perspective, the importance of judiciously using equipment like fins in training sessions (Castro, et al., 2021). Coaches are advised to vary the size and frequency of equipment use to achieve specific training objectives wherein the design of fins, including factors like size and material composition because it has impact on swimming kinematics and propulsive efficiency. The need for coaches to carefully consider these aspects when incorporating equipment into training regimens should assess arm stroke efficiency in swimming, the effects of equipment like fins on stroke mechanics, energy cost, and overall swimming performance. Coaches are encouraged to leverage these fin swimming to optimize training strategies and enhance swimmers' performance.

Imagery training is a mental practice technique that involves creating or recreating experiences in the mind to enhance performance (Lin, et. al, 2021). In the context of fin swimmers, training affects their ability to handle pressure, enhance sports performance, and stabilize psychological well-being. Hence, evaluation criteria are needed on to see how imagery training helps fin swimmers manage the stress and pressure associated with competitive swimming. Moreover, challenges are present since mentally rehearsing scenarios and responses affects how athletes can potentially improve their ability to cope with high-pressure situations. As to sports performance, imagery training is known to positively impact athletic performance by enhancing skills, technique, and overall execution. In the case of fin swimmers, mental imagery contributes to improved swimming performance and efficiency as well as psychological stability. The psychological aspect of sports is crucial for athletes' well-being and performance wherein aid in stabilizing mental states, boosting confidence, and fostering a positive mindset are essential for success in competitive sports like fin swimming. In selecting and characterizing key kinematic parameters of leg and monofin movements to optimize swimming efficiency that needs distribution of forces during a single movement cycle. Hence, the present study would like to dwell on the evaluating criteria leading to benefits of training in adjusting pressure, improving performance, and stabilizing psychological quality, among athletes, coaches and sports scientists that can tailor training programs to address challenges leading to enhancement of athletes' mental resilience and overall success in sports. The present study also wants to establish the influence of training on fin swimmers shed light on mental preparation and psychological resilience by honing the mental skills of athletes which possibly optimize their performance, and well-being in the demanding world of competitive swimming.

In the context of fin swimming, which is a discipline within lifesaving that involves swimming with the assistance of fins requires key performance indicators in enhancing athletes' capabilities (Reichmuth, et. al. 2021). Strength as an indicator particularly upper body and leg strength is affecting competitive lifesaving performance which is highly relevant to fin swimming, where propulsion and speed are essential for efficient movement through the water. Endurance swimming performance remains a vital component for overall athletic success and contribute to sustained performance over longer distances, which is pertinent in fin swimming competitions that may involve varying distances and durations. Flexibility as an indicator plays a role in preventing injuries and maintaining optimal body mechanics in sports like fin swimming. Athletes engaging in fin swimming must balance strength and flexibility to achieve efficient and powerful movements in the water. Anthropometric characteristics, technical skills specific to lifesaving, and core strength are also mentioned as varying factors across different pool-based disciplines in competitive lifesaving. These aspects are essential considerations for fin swimmers, as they impact body positioning, stroke efficiency, and overall performance in the water. Hence, the present study focuses on evaluation of criteria in fin swimming to provide the critical elements influencing athletes' success in the sport optimizing performance and achieving competitive excellence in this discipline.

Chinese athletes in fin swimming have faced significant challenges, particularly concerning doping controversies and scrutiny within the sport (Lord, 2023). These challenges have not only impacted the athletes but also about the integrity of the sport wherein the World Anti-Doping Agency is ensuring fair competition and maintaining the credibility of the sport. The challenges experienced by Chinese athletes in fin swimming extend beyond doping controversies but also the fairness and transparency of the selection process in Chinese swimming. Hence, Chinese athletes in fin swimming grapple with a range of challenges, as regards to sport's reputation to selection controversies wherein to address these challenges it requires a concerted effort from governing bodies, coaches, government and athletes to uphold the principles of clean sport and ensure a level playing field for all competitors. Fin swimming is a kind of racing non-Olympic sports in swimming pool or natural waters with a combination of bionic beauty, speed sense as one of the great spectators' competitive sports. With, this, the present study is significant as it entails to uncover challenges of fin swimming since sports are highly regarded in China, but there is also a distinction between Olympic and non-Olympic sports, of which fin swimming is a non-Olympic sport.

Accordin to Chen (2023) that China's non-Olympic sports should develop into social groups under the background of China's sports power. Enhancing social benefits can build a good image of the event to enhance the impact on the public. Strengthen publicity efforts, open up the mass market, and better realize the contemporary value of China's non-Olympic sports like in swimming to serve the society and the people. Public sports, sports socialization, sports culture and sports social value are context that can provide how to understand fin swimming development status and the latest progress. The coordination between the government, schools and society should be strengthen to introduce fin swimming as a spot and discipline. Even if there is interest, poor skills discourage students. At the same time, the lack of high-quality teachers is also the reason why it is difficult to carry out activities.

Chinese fin swimming has experienced the development history of starting to explore, developing and growing, comprehensively improving, and leading the world. However, challenges play a significant role in shaping the effectiveness of training techniques and the overall performance of fin swimmers. The focus of these challenges is effectiveness of respiratory muscle training, long-term impact of fins on swimming performance, influence of equipment on kinematics and stroke mechanics, training adaptations and technique changes. The importance of targeted training in improving underwater fin-swimming performance are commonly used in swimming schools wherein the long-term effects on athletes' improvements are not well understood. This lack of clarity poses a challenge in assessing the sustained benefits of using fins in training swimmers. Hence, the researcher believes that extended use of swim fins can lead to changes in stroke mechanics that may not transfer effectively to regular swimming. Another challenge is the swimmers risk developing habits that do not align with optimal swimming techniques which affecting their performance in competitive settings. Ergo, the present study would like to determine the challenges encountered in fin swimming underscore the complexity of optimizing training methods and enhancing performance outcomes in this sport based on standard evaluation criteria. Addressing these challenges through tailored training approaches is crucial to improving the effectiveness of fin-swimming training programs and maximizing athletes' performance potential.

Studying sports like fin swimming is relevant as current trends in competition shows innovative approaches leading to a more comprehensive evaluation criteria to measure performance and to be recognized in more competition. Knowledge and appreciation gaps on fin swimming among Chinese school communities must be strengthened to increase awareness other than traditional swimming. The role of government related agencies in fostering fin swimming is necessary in today's demands for sports. Hence, the present is study is relevant as it supports collaborative sports environments that facilitate interdisciplinary cooperation between athletes, coaches, government agencies and local communities. Holistic understanding of sports systems in fin swimming and interaction in implementing training focused initiatives also requires effective leadership. The present study would like to also address the conceptual gaps through responsible competition practices where evaluation criteria and standards are established that can effectively promote fin swimming as a discipline and competitive sport influencing individual behaviors and organizational appreciation. Notable gaps on acceptance of fin swimming as an enhancement approach to traditional swimming includes understanding of its importance in the growing demands of sports competition and performance of athletes. Research is needed on how sports related stakeholders can promote equity, social justice, cultural responsiveness and sustainability solutions in competition policies and practices. These gaps highlight the need for the present study to enhance integration of upgraded evaluation criteria and addressing the challenges would lead to formulating advancement and public recognition of fin swimming as a sport and discipline.

The researcher is compelled to discover key evaluation criteria and challenges to better give a picture n how to understand the development needs of Chinese fin swimming. Studying the development needs and objectives of fin swimming in China leads to the development direction and key issues of the to provide advancement and increase public recognition. The present study supports the driving effect of fin swimming on

the development of national sports, and how to improve the system of non-Olympic events that will promote the development of swimming. Such driving effect of fin swimming can increase public recognition on the development of sports industry by increasing the number of athlete-participants, infrastructure, training conditions and other basic indicators to improve swimming competitions.

The researcher is motivated to explore the evaluation and challenges of fin swimming leading to formulation of strategies for advancement and development in its current field along with public recognition. The purpose of this study on determining the key evaluation criteria used to assess performance in fin swimming, identifying the challenges encountered that impact the training methods and performance outcomes in fin swimming and assessment on how can mental preparation and psychological resilience play in overcoming challenges in fin swimming leading to optimizing performance evaluation. The main output is to formulate strategies that enhance the field development and public recognition of fin swimming as a competitive sport. The main and specific purposes were used to address the gaps identified.

Common challenges indicate government policy formulation and capital investment imbalance, social attention to fin swimming is not high, the degree of industrialization is not high, talent team construction is blocked, the competition is not advanced and so on. However, the researcher would like to establish the current challenges specifically catered on the athletes, coaches and government agencies to find ways and strategies to solve these problems provided advancement and recognition of fin swimming.

The present study is beneficial to many stakeholders. It is important for fin swimming coaches to study the current situation of fin swimming in China and explore the future development of the sport, as this study allows coaches to understand the unique status of this sport as a non-Olympic sport and the history of fin swimming in China. Coaches can come up with practical countermeasures to meet the challenges of the new era, adapt training methods to social changes, and contribute to the recognition and glory of the sport on the international stage. Guide the coaches to understand the socialization transformation and development path of Chinese fin swimming, as well as the needs of the government, schools and society, and make positive contributions to the sustainable development and popularization of Chinese fin swimming.

Studying the development of Chinese fin swimming is very important for Chinese fin swimmers as it addresses the unique challenges and opportunities in non-Olympic sports. By providing practical countermeasures and strategic road maps, the study enables fin swimmers to actively contribute to the national and international recognition and glory of the sport. In addition, insights into social transformation, organizational change, and the exploration of multiple development paths guide fin swimmers to adapt to the changing sporting environment, inspire more athletes to participate in the sport and maximize their potential in a dynamic economic and cultural society.

It is of great significance to study the development of Chinese fin swimming and provide a blueprint for the strategic positioning and development of Chinese non-Olympic sports. As Chinese fin swimming seeks its unique identity, coaches and stakeholders of other non-Olympic sports can learn lessons in obtaining state support, adapting to the development environment and implementing practical countermeasures for sustainable development. With an emphasis on social transformation, organizational change, and the exploration of multiple development paths, this study provides valuable insights into enhancing the visibility, visibility, and cultural value of non-Olympic sports in China's evolving sports landscape.

Studying the development of fin swimming in China is of great significance to the Chinese government as it provides a strategic roadmap for the integration and recognition of non-Olympic sports within the national sports framework. This study puts forward feasible countermeasures, emphasizes the exploration of socialization transformation, organizational reform and multiple development paths, and guides the government to formulate policies supporting the sustainable development of fin swimming. In addition, the study highlights the potential to harness the social and cultural value of Chinese fin swimming, contribute to the broader marketization of sports and improve the status of Chinese water sports in the international arena.

Studying the development of fin swimming in China is of vital importance to society, as it aims to provide practical countermeasures for the development of this sport and cultivate a new understanding of swimming in society. By studying the unique challenges of fin swimming and emphasizing social transformation, organizational change and multi-dimensional development paths, this study contributes to promoting the overall health and popularity of fin swimming. In addition, the realization of the social and cultural value of Chinese fin swimming is not only important for the sustainable development of sports marketability, but also has incalculable significance for promoting the overall healthy development of Chinese fin swimming under the wider social background.

With this, the researcher is motivated to explore the evaluation and challenges of fin swimming leading to formulation of strategies for advancement and development in its current field along with public recognition. The study also identified what are the key evaluation criteria used to assess performance in fin swimming. Moreover, it determined what are the challenges encountered that impact the training methods and performance outcomes in fin swimming. Additionally, the study explored how can mental preparation and psychological

resilience play in overcoming challenges in fin swimming leading to optimizing performance evaluation. Furthermore, the results of the study used to determine what strategies can be formulated to enhance the field development and public recognition of fin swimming as a competitive sport.

Fin Swimming

Finswimming emerged as a competitive speed sport in 1981 during the World Games, involving races either on the water's surface or underwater over specified distances. Athletes in this sport utilize various equipment such as masks, front-mounted snorkels, and either bifins or monofins. Breathing techniques include holding one's breath, using a snorkel, or employing a pressurized tank with a lung regulator. Monofins primarily rely on the lower limbs for propulsion and vertical displacement of the body, while bifins involve a crawl swimming technique resembling breaststroke. The sport has undergone rapid evolution, with continuous improvements in training methods aimed at enhancing athletic performance. (Umpta, 2021)

In basic terms, according to Form (2022), swim fins are footwear designed to enhance speed and efficiency while swimming. Inspired by the fins of aquatic creatures, they amplify the power of kicking movements in humans. By enlarging the surface area of the feet, fins create more resistance, thus improving propulsion through the water. It's important to note that swim fins used for pool workouts differ from diving or snorkeling fins, being smaller in size and having distinct rigidity and shape characteristics.

The utilization of swim fins is on the rise among both amateur swimmers for leisure and for training purposes, creating a burgeoning market for manufacturers. Altering the design, shape, or weight distribution of fins could potentially increase stress on joints. However, the impact of these design variations on muscle activity, which governs joint movements, remains largely unexplored. Only one study examining muscle activity during swimming with fins has been identified thus far. (Marion et al., 2023)

In the similar study of Sellés-Pérez et al., (2023), training with fins presents a promising solution to this challenge, as the enhanced swimming speed and efficiency associated with this equipment could significantly improve performance outlook for individuals. Moreover, it introduces an external factor into training sessions, altering their dynamics, which has been demonstrated to positively impact perceived effort, akin to training with music.

Many swimming coaches incorporate flotation aids like pull-buoys or propulsion tools such as fins to diversify their training regimens. Some studies, including those by Chua et al. (2019), suggest that task variation fosters learning and motor skill development. However, not all sports disciplines have yielded positive outcomes with varied training approaches.

In swimming, diversifying practice routines appears to promote swimmers' adaptive mechanisms to aquatic environments, enhancing their learning and performance, as highlighted by research by González & Sedlacek (2020).

Challenges Encountered that Impact the Training Methods and Performance Outcomes in Fin Swimming

The technical characteristics and competitive performance in fin swimming are influenced by a combination of factors including athletes' physical conditioning, technique proficiency, equipment quality, and environmental conditions, all of which contribute to the overall competitiveness of the sport. Furthermore, Li and Wang (2022) conduct an analysis focusing on the technical characteristics of competitive fin swimming and the factors influencing performance. Their study delves into the intricate aspects of fin swimming techniques, shedding light on potential challenges encountered in training methods that aim to optimize performance outcomes.

Ongoing research on the innovation of underwater kicking technology in fin swimming aims to enhance propulsion efficiency, streamline movement patterns, and optimize the interaction between athlete biomechanics and equipment design, ultimately pushing the boundaries of speed and performance in the sport. Similarly, Chen and colleagues (2021) explore innovative techniques in underwater kicking specifically tailored for fin swimming. Their research highlights the need for advancements in training methods to address challenges posed by traditional approaches, particularly in enhancing propulsion and efficiency underwater.

High-level fin swimmers exhibit a unique combination of physiological characteristics, including exceptional cardiovascular endurance, muscular strength, and anaerobic capacity, which are finely tuned through rigorous training regimes. Influencing factors such as genetics, training methods, nutrition, biomechanics, and psychological factors play pivotal roles in shaping the athletic capabilities and competitive success of these athletes. Additionally, Wang et al. (2020) delve into the physiological characteristics of high-level fin swimmers and the factors influencing their performance. By examining the physiological demands of fin swimming, their study reveals potential limitations in current training methods aimed at optimizing physical performance.

The energy metabolism characteristics of fin swimming athletes vary during different training intensities, reflecting the dynamic metabolic demands imposed by varying exercise intensities. At lower training

intensities, such as steady-state swimming, athletes predominantly rely on aerobic metabolism, utilizing oxygen to produce energy efficiently over prolonged durations. Moreover, Liu and colleagues (2023) analyze the energy metabolism characteristics of fin swimming athletes across various training intensities. Their findings shed light on potential challenges in designing training programs that effectively meet different training goals while optimizing energy expenditure.

Competitive fin swimmers exhibit a range of psychological characteristics, including mental toughness, resilience, focus, and goal orientation, which are shaped by various influencing factors such as motivation, self-confidence, stress management, and coping strategies, ultimately playing a critical role in their performance and success in the sport. In addition, Zhang et al. (2021) explore the psychological aspects of competitive fin swimming, highlighting potential challenges that might hinder performance and necessitate adjustments in training methods. Their research underscores the importance of addressing psychological factors to enhance overall performance outcomes in fin swimming.

The psychological pressure experienced by fin swimming athletes, stemming from competition expectations, performance anxiety, and self-imposed standards, necessitates effective adjustment strategies such as visualization techniques, mindfulness practices, positive self-talk, and stress management strategies to maintain focus, confidence, and optimal performance under pressure. Similarly, Sun and colleagues (2020) conduct an analysis of the psychological pressure faced by fin swimmers and propose adjustment strategies. Their study suggests potential areas where training methods can be improved to address mental well-being and alleviate psychological pressure among athletes.

The optimization of fin swimming training programs for high-level athletes involves a multifaceted approach encompassing periodization, specificity, individualization, recovery strategies, and performance monitoring to systematically enhance aerobic and anaerobic capacity, technical proficiency, strength, and mental resilience, thereby maximizing athletic potential and competitive success. Moreover, Xu and Li (2022) investigate methods to optimize training programs for high-level fin swimmers. Their research implies potential shortcomings in current training approaches, highlighting the need for tailored training programs to meet the specific needs of elite athletes in fin swimming.

Scientific periodization of training for competitive fin swimming involves systematically organizing training variables such as volume, intensity, and frequency across different training phases, including preparation, base, competition, and transition periods, to optimize physiological adaptations, performance peaks, and recovery, thereby maximizing the athlete's potential for success in major competitions. Furthermore, Wang and colleagues (2019) explore the concept of scientific periodization in fin swimming training. Their study suggests potential challenges in implementing optimal training structures throughout the year to maximize performance outcomes in competitive fin swimming.

The development and application of fins in competitive fin swimming have revolutionized the sport by enhancing propulsion efficiency, stroke mechanics, and speed, while also posing technical challenges and regulatory considerations that necessitate ongoing innovation, standardization, and adaptation to ensure fair competition and athlete safety. Additionally, Li and Liu (2020) discuss the development and application of fins in competitive fin swimming, addressing the potential impact of equipment limitations on training effectiveness and performance outcomes. Their research underscores the importance of refining equipment to optimize training methods and enhance performance in fin swimming.

Tailored training methods in fin swimming, based on different competition distances, involve a strategic balance between aerobic endurance development for longer distances and anaerobic capacity training for shorter distances, emphasizing stroke technique refinement, pacing strategies, and energy system specificity to optimize performance across varying race distances. Furthermore, Zhao and Liu (2023) analyze the need for specific training methods tailored to different competition distances in fin swimming. Their study highlights potential challenges in designing one-size-fits-all training programs and emphasizes the importance of customizing training regimens to meet the unique demands of each competition distance.

Mental Preparation and Psychological Resilience Play in Overcoming Challenges in Fin Swimming Leading to Optimizing Performance Evaluation

The application of mental preparation strategies in competitive fin swimming encompasses visualization, goal-setting, self-talk, relaxation techniques, and stress management, fostering mental resilience, confidence, focus, and optimal performance under pressure, thereby complementing physical training and enhancing overall athletic achievement. Moreover, Li and Wang (2022) delve into the application of mental preparation strategies such as goal setting and visualization in competitive fin swimming. Their study underscores the significance of mental preparation in overcoming challenges and enhancing performance outcomes. By analyzing the effectiveness of these strategies, they provide insights into how athletes can optimize their mental state for improved performance in fin swimming competitions.

A comprehensive mental training program for improving competitive anxiety in fin swimmers may include a combination of cognitive-behavioral techniques, such as relaxation exercises, positive visualization, goal-setting, stress management strategies, and mindfulness training. By addressing the underlying causes of anxiety and building psychological resilience, this program aims to enhance athletes' ability to cope with competitive pressure, maintain focus, and perform at their best during fin swimming competitions. In addition, Zhang and colleagues (2021) investigate a mental training program aimed at alleviating competitive anxiety among fin swimmers. Their research highlights the importance of addressing psychological barriers that may hinder performance. By implementing targeted mental training interventions, they demonstrate how athletes can effectively manage anxiety and enhance their competitive edge in fin swimming.

The application of mental imagery in pre-competition preparation of fin swimming athletes involves vividly visualizing each aspect of the race, including the start, strokes, turns, and finish, while engaging all senses to create a realistic mental simulation. This mental rehearsal helps athletes enhance technique, build confidence, manage anxiety, and mentally prepare for various race scenarios, ultimately optimizing performance and increasing the likelihood of achieving desired outcomes in competition. Moreover, Sun et al. (2020) explore the application of mental imagery techniques in the pre-competition preparation of fin swimming athletes. Their study suggests that mental imagery can enhance focus and alleviate performance anxieties, thereby optimizing performance outcomes. By integrating mental imagery into training regimens, athletes can effectively prepare themselves mentally for competition and overcome psychological barriers.

Fin swimming, like any sport, presents numerous obstacles such as setbacks, failures, intense competition, and external pressures. Athletes with higher levels of psychological resilience demonstrate the capacity to bounce back from adversity, adapt to changing circumstances, and maintain focus and determination despite challenges. Moreover, Wang and colleagues (2023) examine the relationship between psychological resilience and competitive performance in fin swimming athletes. Their research highlights the importance of mental toughness in overcoming challenges and achieving optimal results. By fostering psychological resilience, athletes can better cope with setbacks and maintain peak performance levels in fin swimming competitions.

The psychological resilience of competitive fin swimmers is influenced by a multitude of factors, including but not limited to, past experiences with adversity, social support networks, coping skills development, mental training interventions, coach-athlete relationships, and personal traits such as optimism, perseverance, and self-belief, all of which play pivotal roles in shaping athletes' ability to withstand and thrive amidst the challenges of competitive sport. In addition, Liu et al. (2022) analyze the factors influencing psychological resilience in competitive fin swimmers. Their study provides insights into the psychological traits and coping mechanisms that contribute to resilience in athletes. By understanding these factors, coaches and sports psychologists can tailor interventions to enhance athletes' mental resilience and optimize their performance in fin swimming.

The relationship between mental health and competitive performance of fin swimming athletes is significant, as psychological well-being directly impacts athletes' confidence, motivation, resilience, and ability to cope with stress, ultimately influencing their performance, enjoyment of the sport, and overall athletic success. Similarly, Xu and Li (2021) explore the link between mental health and competitive performance in fin swimming athletes. Their research emphasizes the importance of addressing mental health challenges to optimize performance evaluation. By prioritizing mental well-being, athletes can better cope with stressors and maintain focus during competitions, ultimately leading to improved performance outcomes.

The psychological pressure experienced by fin swimming athletes, stemming from performance expectations, competitive stress, and self-imposed standards, necessitates effective coping strategies such as mindfulness techniques, goal-setting, social support networks, and mental rehearsal to manage anxiety, maintain focus, and enhance resilience, ultimately facilitating optimal performance and well-being in the sport. In addition, Zhao and Liu (2020) analyze the psychological pressure faced by fin swimming athletes and propose coping strategies. Their study highlights the importance of effective coping mechanisms in managing performance-related stressors. By implementing targeted coping strategies, athletes can mitigate the negative impact of psychological pressure and perform at their best in fin swimming competitions.

The application of psychological evaluation in optimizing training programs for fin swimming athletes involves assessing individual mental strengths and weaknesses, stressors, coping mechanisms, and motivation levels to tailor training protocols, implement targeted interventions, and foster psychological resilience, thereby enhancing overall performance and well-being in the sport. Similarly, Wang and colleagues (2019) explore the application of psychological evaluation in optimizing training programs for fin swimming athletes. Their research demonstrates how mental assessments can help identify challenges and tailor training regimens for optimal performance. By incorporating psychological evaluation into training programs, coaches can better understand athletes' needs and address mental health issues that may affect performance.

The development of a psychological evaluation system for fin swimming athletes involves designing a comprehensive framework that integrates validated assessment tools, such as questionnaires, interviews, and

performance profiling, to systematically evaluate key psychological factors including motivation, confidence, resilience, stress management, and goal-setting, thereby providing valuable insights for personalized training program optimization and mental skills development tailored to the unique needs of each athlete. Additionally, Li and colleagues (2020) discuss the development of a psychological evaluation system for fin swimming athletes. Their study highlights the importance of ongoing mental health monitoring in identifying and addressing challenges. By implementing a comprehensive evaluation system, coaches and sports psychologists can provide personalized support to athletes and optimize their performance in fin swimming competitions.

The application of sport psychology intervention in improving the psychological quality of fin swimming athletes involves implementing evidence-based strategies such as goal-setting, imagery, self-talk, relaxation techniques, and stress management training to enhance mental skills, resilience, confidence, and focus, thereby optimizing performance and promoting well-being in the competitive environment of fin swimming. Moreover, Zhang and colleagues (2023) examine the application of sport psychology interventions in improving the psychological well-being of fin swimmers. Their research highlights the effectiveness of such interventions in overcoming challenges and optimizing performance evaluation. By integrating sport psychology techniques into training programs, coaches can help athletes develop the mental skills necessary for success in fin swimming competitions.

Generally, previous literature and studies generally discussed the multifaceted nature of fin swimming, exploring its physiological demands, technical intricacies, and psychological factors influencing performance. Earlier research often emphasized the importance of aerobic and anaerobic conditioning, stroke mechanics, and race strategies in achieving success in the sport. Additionally, studies highlighted the role of mental preparation, such as visualization and goal-setting, in enhancing performance outcomes.

As compared to the current studies, similarities were found in the continued recognition of the significance of physiological conditioning and technical proficiency in fin swimming performance. Both past and present research underscored the importance of aerobic endurance, muscular strength, and stroke efficiency in achieving competitive success. Similarly, there remains a consistent emphasis on mental preparation and psychological resilience as critical factors in optimizing performance and overcoming challenges in fin swimming. However, differences were noted in the depth of understanding and integration of psychological factors in current studies. Recent research has increasingly delved into the nuances of mental preparation techniques, such as mindfulness training and stress management strategies, highlighting their potential to enhance athlete performance and well-being. Moreover, contemporary studies have also explored novel approaches to training methodologies and performance evaluation, incorporating advancements in sports science and technology to further refine athlete development in fin swimming.

Hence, the synthesis of previous literature and current studies serves as a basis for advancing our understanding of fin swimming as a competitive sport. By acknowledging both historical perspectives and recent advancements, researchers and practitioners can identify areas of continuity and evolution in training methods, performance evaluation, and psychological support, thereby informing future initiatives aimed at optimizing athlete development and promoting the recognition of fin swimming on a global scale.

Statement of Purpose

The researcher would like to explore the evaluation and challenges of fin swimming leading to formulation of strategies for advancement and development in its current field along with public recognition.

Specifically, providing answers to the following stated purposes;

1. What are the key evaluation criteria used to assess performance in fin swimming?
2. What are the challenges encountered that impact the training methods and performance outcomes in fin swimming?
3. How can mental preparation and psychological resilience play in overcoming challenges in fin swimming leading to optimizing performance evaluation?
4. Based on the results of the study, what strategies can be formulated to enhance the field development and public recognition of fin swimming as a competitive sport?

Significance of the Study

Fin swimming, an exhilarating sport combining elements of swimming, snorkeling, and freediving, has garnered attention for its unique blend of athleticism and grace. As enthusiasts seek to advance the discipline and gain recognition on a broader scale, evaluating its intricacies and confronting inherent challenges becomes imperative. This exploration delves into the multifaceted landscape of fin swimming, aiming to identify strategies that propel its advancement while addressing obstacles that hinder its recognition. By dissecting the sport's nuances, from technique refinement to regulatory frameworks, this endeavor seeks to foster a deeper understanding of fin swimming's potential and pave the way for its elevation onto a global stage.

This study on the evaluation and challenges of fin swimming, along with strategies for advancement and recognition, would benefit various stakeholders involved in the sport. Here's how different groups would benefit:

Coaches. Coaches would gain valuable insights into the evaluation criteria and challenges faced by fin swimmers. This understanding can help them tailor training programs more effectively to address these challenges and enhance athlete performance.

Government Agencies. This agency would benefit from understanding the needs and challenges of fin swimming as a sport. It can use this information to allocate resources, develop infrastructure, and implement policies that support the growth and development of fin swimming.

Ministry of Education. This agency could incorporate fin swimming into school curriculums or extracurricular activities, thereby promoting the sport among youth and nurturing talent from a young age.

National Sports Federations. Government sports federations responsible for overseeing aquatic sports can use insights from the study to develop standardized evaluation criteria, training programs, and competitions for fin swimming.

Athletes. Competitive fin swimmers would benefit from a clearer understanding of the evaluation standards and challenges within the sport. This knowledge can help them focus their training efforts more effectively and set realistic goals for improvement. Furthermore, aspiring athletes would gain insights into the demands and requirements of fin swimming, helping them make informed decisions about pursuing the sport professionally.

Future Researchers. Researchers interested in sports science, aquatic sports, or evaluation methodologies would find this study valuable for its insights into a niche area of sports performance assessment. It could serve as a foundation for further research on topics such as training methods, biomechanics, or psychological factors affecting fin swimmers.

Proponent of the Study. The researcher conducting the study would benefit from contributing to the body of knowledge in sports science and making a meaningful impact on the development and recognition of fin swimming as a competitive sport. Additionally, conducting such a study could enhance the researcher's expertise in sports evaluation, data analysis, and strategic planning, which could be beneficial for their career advancement in academia or sports management.

Scope and Delimitations

The present study covered Chinese school athletes and coaches as well as government entities related to fin swimming. The primary purpose is to explore the evaluation and challenges of fin swimming leading to formulation of strategies for advancement and development in its current field along with public recognition. The researcher decided to limit the purpose of this study on determining the key evaluation criteria used to assess performance in fin swimming, identifying the challenges encountered that impact the training methods and performance outcomes in fin swimming and assessment on how can mental preparation and psychological resilience play in overcoming challenges in fin swimming leading to optimizing performance evaluation.

The researcher is also motivated to formulate strategies that enhances the field development and public recognition of fin swimming as a competitive sport. The researcher used qualitative method and covered at least 3 coaches, 3 government entities and 5 athletes in selected Chinese schools. The researcher also acknowledges time constraints and availability of participants.

Definition of Terms:

For better understanding, the following terms are defined operationally:

Athletes. It refers to individuals who actively participate in fin swimming, striving to improve their performance and compete at various levels of the sport.

Evaluation and Challenges of Fin Swimming. It refers to the systematic assessment and analysis of various aspects related to the performance, training, and participation in fin swimming as a competitive sport. This includes evaluating athletes based on criteria such as speed, technique, and endurance, as well as identifying and addressing the obstacles, difficulties, and limitations faced by athletes, coaches, and stakeholders involved in the sport.

Fin Swimming. It is defined as a competitive aquatic sport in which athletes use specialized fins to propel themselves through the water in various distances and disciplines, such as surface, apnea, or immersion.

Government Agencies. It refers to organizations or departments within the government responsible for overseeing and regulating aspects related to sports, including funding, infrastructure development, and policy-making in relation to fin swimming.

Performance Evaluation. It means the process of assessing and analyzing the performance of fin swimmers based on predetermined criteria, such as speed, technique, and endurance, to gauge their proficiency and progress in the sport.

Psychological Resilience. It is defined as the ability of fin swimmers to adapt to and bounce back from challenges, setbacks, and pressures encountered in training and competition, maintaining mental strength and focus to optimize performance.

Strategies for Advancement and Recognition. It means the deliberate plans, actions, and initiatives aimed at fostering the growth, development, and visibility of fin swimming as a competitive sport on both national and international levels. These strategies may include measures to enhance training programs, infrastructure, and funding support for athletes and coaches, as well as initiatives to raise awareness, promote participation, and garner public recognition for the sport through marketing, media coverage, and partnerships with relevant stakeholders.

Training Methods. It refers to the systematic approaches and techniques employed by coaches and athletes to develop skills, physical fitness, and performance in fin swimming, encompassing aspects such as conditioning, technique drills, and recovery strategies.

II. METHODOLOGY

The research methodology covers the procedures and techniques used to conduct the investigation. This section discusses the research instrument, instrument validation, study participants, sample size and population, data collection procedures, statistical techniques applied during data analysis, and research strategy.

Research Design

The presents study was conducted since compliance to swimming competitions, school policies and government regulations are evident. Sports demands are growing wherein performance criteria, continuous evaluation and addressing challenges should be considered in matching the needs of the athletes, coaches, sports scientists among other stakeholders. Hence, qualitative approach is the appropriate method as supported by the available data which guided the researcher throughout the process particularly ground theory.

The researcher employed interview guide in the conduct of qualitative method. Qualitative research method varies depending on use such as focus group discussion, interview, and observations. According to Tomaszewski (2020), qualitative research is defined as “it values people’s lived experiences and is inherently subjective and sensitive to the biases of both researchers and participants”. Hence, this study used qualitative method and conducted interviews with coaches, government entity and athletes. Grounded theory is a qualitative research methodology that aims to develop theories grounded in empirical data. Grounded theory is characterized by its flexibility in research design, allowing researchers to adapt their approach based on emerging data insights (Tie, et. al., 2019)

Sampling Technique

The researcher used purposive sampling technique, it is a non-random technique, also known as judgment sampling, in which the researcher sets out to find participant-respondents than can and are willing to provide necessary information because of their experience and knowledge (Rai and Thapa, 2019). The criteria in the selection of participants is described to have at least one year experience in relation to fin swimming, 19 years old and above, and those government agencies however should be supporting fin swimming as a sport. This provided the researcher understanding of the research objectives and its specific variables, and they are willing to share and reflect their experiences and knowledge.

Participants of the Study

The participants of the study were three (3) coaches, three (3) government agencies and six (6) athletes related to fin swimming in China. The criteria for the coaches include being employed in either public and private Chinese schools or universities who have at least one (1) year experience or has been teaching fin swimming. For athletes, the criteria focus on being at least nineteen (19) years old and has been playing and joining fin swimming competitions. The government agencies shall be those supporting fin swimming as a sport and discipline. All parties should be knowledgeable and willing to be interviewed.

Research Instrument

The interview guide used as the main data-gathering instrument which covered key evaluation criteria used to assess performance, challenges encountered that impact the training methods and performance outcomes and assessment on how can mental preparation and psychological resilience play in overcoming challenges in fin swimming leading to optimizing performance evaluation. During the validation process, the interview guide was first submitted to the research adviser for her comments and suggestions. Hence, the 3 research validators checked the content of the interview guide for the validity of the instrument. Moreover, all the documents were submitted to the panel committee for their approval and as well as to the University Ethics Review.

Data Gathering Procedures

Once the paper proposal is approved, the researcher immediately proceed to the chapters required for proposal and prepare interview questions guided by the objectives of this research study. Further, the research proposal was presented to the panelists and University Ethics Review, all suggestions were incorporated and improve the research paper. The researcher then ask permission to the participant-schools, government agencies, and athletes. The researcher scheduled appointments with the participants for interview using guide questions. The interview transcripts were prepared to come up with the themes. The results of the study also be conformed to the synthesized related literature and studies. Once the required chapters of the paper were completed and reviewed, it then be submitted for final defense.

Qualitative research is an essential approach for gathering in-depth insights into human experiences, attitudes, and behaviors. The researcher chose structured interview which is a primary method for collecting qualitative data to capture rich, contextual information about participants' perspectives and experiences. It allowed the researcher to explore complex topics in depth, facilitating a nuanced understanding of participants' thoughts and feelings. The flexibility of interviews enables the researcher to adapt questions based on the flow of conversation leading to unexpected insights and deeper understanding. In the conduct of the interview, the researcher set comfortable environment, been an active listener, have done recording and note taking. Qualitative data gathering through interviews is a powerful method for exploring the complexities of human behavior and experiences. Hence, the researcher carefully designed an interview guide, created a supportive environment, employed effective listening techniques and collected rich, nuanced data that provides valuable insights that enhanced understanding and contributed to more informed decision-making. The researcher used qualitative method, specifically grounded theory which is a systematic methodology that generates theory through the collection and analysis of qualitative data and develop theories based on the patterns that emerge from the themes created.

Moreover, in gathering relevant data needed in this research study, the researcher adhered to ethical standards and comply with the confidentiality agreement between the researcher and participants wherein necessary consent were obtained in the conduct of the study. According to Chetty (2016), the researcher needs to adhere to promote and impart authentic knowledge following ethical standards that values accountability, trust, mutual respect and fairness among others.

Furthermore, all parties complied and involved in the ethical implementation. The participants were briefed about the research topic, answering the interview guide while assuring them of confidentiality of the information. The researcher values the anonymity of the information which were obtained from the participants by not revealing the identity of those concerned. The privacy of the participants and the confidentiality of data obtained from them are strictly maintained and followed in such a manner that the participants couldn't be identified in the report or results or any related publications that this study addressed. The researcher assured that the information was used purely for this particular research paper and for academic purposes only. There were no vulnerable groups or minors in the study as participants are adults who are working and the students are based on the criteria set which are at least nineteen (19) years old and are recognized athletes. Participants were all be adults who could decide on their own and can provide the appropriate information about the research topic.

Generally, the researcher assured that the information gathered used purely for this particular research and for other related academic purposes. All the sources of literature were acknowledged through proper citations and referencing. In addition, no monetary benefits, incentives or compensation were promised by the researcher to the participants wherein they could withdraw if and when any untoward incident, cost, injury or other similar cases happen.

Data Analysis

Grounded theory analysis is a dynamic and flexible process that emphasizes the development of theory from qualitative data. The researcher employed techniques to include coining themes and selective coding which focused on identifying the core categories that represent the main objectives of the study. The researcher constructs a grounded theory that accurately reflects the complexities of the social phenomena presented in the study.

Ethical Considerations

Research involving human subjects prioritize ethical issues, and this study on exploring the evaluation on and challenges of fin swimming is no exception. To safeguard the rights, welfare, and privacy of study participants, a number of ethical guidelines and practices were followed. Here are the most important ethical considerations for this study:

Informed Consent

The goals, methods, and rights of the research was clearly and completely communicated to coaches, athletes and government representative respondents/participants. Before obtaining informed consent documents, participants have the chance to inquire about the study and offer their voluntary assent to take part in it. They were also be informed of their freedom to leave the study at any moment and without consequence.

Confidentiality

Participants' personal information and answers were handled with the highest confidentiality. To stop unwanted parties from accessing it, the gathered data were securely stored and anonymised. Publications and research reports were not including any names or contact details that might be used to identify specific participants.

Privacy

A concerted effort was made to protect participants' privacy while gathering data. Information shall be collected in a manner that respects their boundaries and personal space, and any information that would jeopardize their privacy were be avoided.

Reduction of Harm

The study carried out with the least amount of potential for harm or discomfort to the subjects. As part of this, make sure the questions on the interview guide are considerate and unobtrusive. Participants' physical and mental health were given first attention during the whole research process.

Beneficence

The research's objective is to provide insightful knowledge to the field of physical education and fin swimming, which could help students, educators, and the larger academic community. There were measures implemented to guarantee that the research is carried out impartially, fairly, and with respect.

Ethical Review

To guarantee adherence to established ethical rules and standards of Adamson University, this research undergo an ethical assessment by UERC.

Transparency

The study process was transparent and well recorded, making it possible to examine and validate the methods and conclusions.

Debriefing

At the end of the study, participants received a summary of the research findings, which can help them understand the results and contributions of the study.

III. Results and Discussions

This chapter explains the results gathered and its discussions arranged according to the stated purposes.

I. Key Evaluation Criteria Used to Assess Performance of Athletes

This section focuses on the key evaluation criteria used to assess the performance athletes as to performance and outcomes as well as other underlying factors in finswimming.

Table 1
Key Evaluation Criteria Used to Assess Performance of Athletes as to Performance and Outcomes

Themes	Recurrences	Defining Elements	Key Informant
Competition Performance	10	<i>“Race times and finishing positions in competitions”</i>	Key Informant 1
		<i>“The most important criterion is my result in the competition, that is, the time to complete the competition”</i>	Key Informant 2
		<i>“The key evaluation criteria typically include race times”</i>	Key Informant 3
		<i>“Regularly achieving strong performance metrics during competitions. How well an athlete can adjust to different race conditions and competitive pressures.”</i>	Key Informant 4
		<i>“Strategy formulation and implementation of the athletes in the competition.”</i>	Key Informant 5

		<i>“Competition strategy involving the tactical arrangement and execution of the athletes during the competition.”</i>	Key Informants 6, 7, 8, 9
		<i>“Athletes’ psychological state and their ability to cope with stress in competition”</i>	Key Informant 7, 8, 9, 10, 12
		<i>“The most intuitive evaluation criterion is the performance of the athletes in the official competition, that is, the competition time and ranking.”</i>	Key Informant 10
		<i>“Performance is the time it takes for athletes to complete the race, which is the most direct evaluation criterion.”</i>	Key Informant 11
		<i>“The tactical arrangement and execution of the athletes during the competition.”</i>	Key Informant 12
Training Efficacy	5	<i>“Timing and Speed is the primary measure of performance is how fast a swimmer completes a given distance. Regularly achieving strong performance metrics during training.”</i>	Key Informant 4
		<i>“Performance data including competition results, training results and technical evaluation, etc. with comprehensive assessment of athlete performance level.”</i>	Key Informant 5
		<i>“The time required for an athlete to complete a specified distance is the primary indicator of his performance.”</i>	Key Informant 6, 12
		<i>“Athletes’ psychological state and their ability to cope with stress in training.”</i>	Key Informant 7, 8, 9, 10, 12
		<i>“Performance and progress in daily training is also an important evaluation criterion.”</i>	Key Informant 10
Total Recurrences	15		

Table 1 presents the key evaluation criteria used to assess the performance athletes as to performance and outcomes which enables the researcher to coin two (2) themes namely competition performance with ten (10) recurrences and training efficacy with five (5) recurrences. The overall recurrences for key evaluation criteria as to performance and outcomes is fifteen (15). The preparation and monitoring of competition performance and training efficacy in fin swimming are critical for optimizing athlete development and achieving competitive success. Structured training programs are essential in fin swimming, as they provide a systematic approach to developing the necessary skills and physical attributes for competitive performance that can lead to improved performance outcomes, particularly when training is tailored to the athletes' developmental stages and individual needs. Training with fins has been shown to enhance aquatic skills and propulsion, allowing swimmers to practice techniques at varying speeds without compromising their performance improvements. Hence, with training efficacy, it creates homogeneous training groups, facilitating better learning environments and promoting competition among peers, which is particularly motivating for younger swimmers. Monitoring competition performance is crucial for assessing the effectiveness of training interventions and identifying areas for improvement. Performance metrics can include time trials, stroke efficiency, and endurance assessments that significantly enhance underwater endurance in fin swimmers, indicating that targeted interventions can yield measurable performance benefits. Regular performance evaluations allow coaches to adjust training regimens based on athletes' progress and specific competition demands.

The key evaluation criteria used to assess the performance of athletes involve a combination of objective and subjective measures designed to evaluate various aspects of athletic performance, including physical fitness, technical skills, and mental preparedness which describes a training efficacy. The ability to generate force and power including to move quickly and rapidly change direction is essential for sports like fin swimming which can be gained from the efficacy of trainings leading to a more enhanced competition performance. The endurance contains the ability to sustain physical activity over a prolonged period and critical for sports like finswimming.

Race times and finishing positions in competitions are crucial aspects of fin swimming, as they determine the outcome of the event and the ranking of participants wherein the points to consider includes timing and classifications, lane allocation, seed times, turns and finishing, health and safety protocols. Race times and finishing positions are critical components of fin swimming competitions. The organization of events, lane allocation, and seed times all contribute to a fair and competitive environment. Additionally, proper techniques for turns and finishing can significantly impact race times, and health and safety protocols are essential for ensuring the well-being of athletes as well as their psychological state.

A well-planned training program can help athletes manage stress and optimize their performance which involves alternating combinations of intensity, volume, and rest throughout the competitive season. Monitoring mood state and psychological factors like stress and fatigue can enhance an athlete's readiness to compete supported by training efficacy. Combating stress is important in fin swimming because an athletes' psychological state is critical in competitions. Managing stress through a well-planned training program, imagery training, and monitoring mood state can help athletes optimize their performance and cope with the pressures of competition.

Fin swimming can significantly impact swimming performance (De Matos, et. al., 2023) requiring athletes to understand and know the different techniques as well as increase energy levels. Moreover, changes in competition events are considered by Chinese Taipei Olympic Committee like promoting sports excellence and fostering a culture of environmental responsibility. Modifications in competitions and demands in fin swimming performance needs training efficacy because of its benefits (Leroy, 2023) and advantages such as reduced strain on shoulders improved power and speed, better kicking technique, enhanced body position, stabilizing mental states, boosting confidence, and fostering a positive mindset.

Table 2 exhibits the key evaluation criteria used to assess the performance athletes as to other underlying factors which enables the researcher to coin two (3) themes as follows; technical aspects with eight (8) recurrences, physiological parameters with nine (9) recurrences and psychological skills with four (4) recurrences. The overall recurrences for key evaluation criteria as to performance and outcomes is twenty-one (21).

Table 2
Key Evaluation Criteria Used to Assess Performance of Athletes
as to Other Underlying Factors for Fin Swimming

c	Recurrences	Defining Elements	Key Informant
Technical Aspects	8	<i>"The technical execution of strokes and use of fins."</i>	Key Informant 1
		<i>"The coach will evaluate whether my swimming skills, including the use of webbing, turning and jumping, are standard and efficient."</i>	Key Informant 2
		<i>"Technical proficiency in strokes and turns."</i>	Key Informant 3
		<i>"Technique includes the efficiency and correctness of strokes, turns, and starts"</i>	Key Informant 4
		<i>"The standardization and efficiency of technical movements, including posture, turn around and propulsion."</i>	Key Informant 5
		<i>"Technical movements: whether the athlete's web swimming technique is standard, smooth and effective"</i>	Key Informant 6, 7, 8, 9, 12
		<i>"Technical level is to evaluate the athlete's swimming skills, including the use of webbing, turn and jump details of normative and fluency."</i>	Key Informant 10
		<i>"Technical performance: including swimming posture, use of webbing, standardization and fluency of technical movements such as turning and jump."</i>	Key Informant 11
Physiological Parameters	9	<i>"Physical fitness levels such as endurance and strength, and mental resilience under pressure"</i>	Key Informant 1,3, 8
		<i>"My physical level, such as endurance, strength and speed, are also important aspects of assessment."</i>	Key Informant 2
		<i>"Physical fitness levels such as endurance and strength, and mental resilience under pressure."</i>	Key Informant 3
		<i>"The ability to maintain high performance across longer distances and multiple races."</i>	Key Informant 5
		<i>"Physical condition including endurance, explosive strength, flexibility and other physical indicators of performance."</i>	Key Informant 6
		<i>"Physical condition including endurance, strength and explosive power and other physical indicators."</i>	Key Informant 6; Key Informant 7
		<i>"The time required for an athlete to complete a specified distance is the primary indicator of his performance."</i>	Key Informant 7, 8, 9
		<i>"Physical condition: including the athletes' cardiopulmonary function, muscle strength and endurance."</i>	Key Informant 10, 11
		<i>"Tactical awareness: tactical execution in the game, such as rhythm control, physical strength distribution"</i>	Key Informant 11
Psychological Skills	4	<i>"Psychological factors like mental toughness and stress management"</i>	Key Informant 1
		<i>"The psychological performance in the competition, including the ability to work under pressure and improvisation, will also be included in the evaluation."</i>	Key Informant 2
		<i>"Psychological quality such as mental stability, coping ability under competition pressure, etc."</i>	Key Informant 5
		<i>"Psychological quality is about athletes' psychological state and their ability to cope with stress in competition and training."</i>	Key Informant 6
Total Recurrences	21		

As gleaned on the results, the theme on technical aspects as mentioned by the key informants presented as follows; *“The technical execution of strokes and use of fins”*; *“The coach will evaluate whether my swimming skills, including the use of webbing, turning and jumping, are standard and efficient”*; *“Technical proficiency in strokes and turns.”* and *“Technique includes the efficiency and correctness of strokes, turns, and starts”* clearly focuses on technical movement and levels as emphasized also by other key informants stated as *“Technical movements: whether the athlete's web swimming technique is standard, smooth and effective”*; *“The standardization and efficiency of technical movements, including posture, turn around and propulsion.”* *“Technical level is to evaluate the athlete's swimming skills, including the use of webbing, turn and jump details of normative and fluency.”* Hence, technical proficiency in fin swimming is heavily influenced by stroke mechanics and the design of the fins used including variations in length, stiffness, and mass, affect muscle activity and propulsion efficiency. Moreover, another key informant stated that *“Technical performance including swimming posture, use of webbing, standardization and fluency of technical movements such as turning and jump”* necessitates importance of a well-thought plan. Training with fins allows swimmers to refine their technique at higher speeds governed by strict regulations regarding equipment. Hence, understanding these regulations is vital for athletes to ensure technical compliance during competitions.

Fin swimming requires a unique technique compared to traditional swimming strokes because the up-and-down propulsion of the fins is different. Hence, proper technique is needed for technical aspects as the reorganization of prior knowledge about swimming is necessary for successful fin swimming performance. Different technical proficiencies need to develop the proper technical skills along with physiological and psychological concerns. Fin swimming places high demands on physical endurance and speed wherein proper training can lead to increase in maximal speed and reduced fatigue in fin swimmers.

The theme on physiological parameters was established based on the following defining elements from the key informants of the study; *“Physical fitness levels such as endurance and strength, and mental resilience under pressure”*; *“My physical level, such as endurance, strength and speed, are also important aspects of assessment”*; *“Physical fitness levels such as endurance and strength, and mental resilience under pressure”*; *“The ability to maintain high performance across longer distances and multiple races”*; *“Physical condition including endurance, explosive strength, flexibility and other physical indicators of performance”*; *“Physical condition including endurance, strength and explosive power and other physical indicators”*; *“The time required for an athlete to complete a specified distance is the primary indicator of his performance”*; *Physical condition: including the athletes' cardiopulmonary function, muscle strength and endurance”*; and *“Tactical awareness: tactical execution in the game such as rhythm control, physical strength distribution”*. With these defining elements, physiological adaptations are significant in fin swimming, particularly concerning cardiovascular and respiratory performance. While fins can facilitate faster swimming speeds, they also increase the overall energy expenditure required for propulsion wherein balancing fin use in training is necessary to maximize efficiency without compromising endurance or technique. Monitoring physiological parameters like heart rate and lactate levels can provide the right training adaptations of fin swimmers.

Based on the results of the study, key informants emphasized that psychological skills of fin swimming performance must be understood because there is a need to do goal-setting and self-talk leading to a positive impact on competitive performance. Their statements are as follows; *“Psychological factors like mental toughness and stress management”*; *“The psychological performance in the competition, including the ability to work under pressure and improvisation, will also be included in the evaluation”*; *“Psychological quality such as mental stability, coping ability under competition pressure, etc.”* and *“Psychological quality is about athletes' psychological state and their ability to cope with stress in competition and training.”* Psychological skills particularly in high-pressure competitive environments is a necessity because the athletes should have the ability to cope with the physical and psychological demands of training and competition. Moreover, mastery of technique, understanding of physiological demands, and the development of psychological resilience collectively enhance an athlete's performance. Coaches and athletes should prioritize these themes to optimize training outcomes and achieve competitive. Improving psychological skills like self-regulation, motivation, and coping with pain, stress and anxiety is beneficial for fin swimmers incorporating alongside technical and physiological training. Hence, this help fin swimmers optimize their performance by developing proper technical skills, monitoring physiological adaptations, and potentially incorporating psychological skills to enhance fin swimming performance given the multifaceted demands of fin swimming as a unique sport.

Training sessions (Castro, et al., 2021) are beneficial to fin swimmers because it optimizes training strategies and enhance competition performance, recreating experiences (Lin, et. al, 2021). Moreover, evaluating criteria leading to benefits of training and competition performances needs the other underlying factors such as technical aspects, physiological parameters, and psychological skills. Improving technical performance and stabilizing physiological and psychological quality of fin swimmers honing their mental, physical and emotional state. The key performance indicators in enhancing athletes' capabilities (Reichmuth, et. al. 2021) is pertinent to competition performance and training efficacies. The importance of technical aspects in

fin swimming lies in the specific benefits that fins provide to improve various aspects of swimming technique and performance. Fins help improve the up-kick motion, increase ankle flexibility, add stability and propulsion, teach proper body position by adding speed to each stroke, reduce the impact on shoulders during swimming, swim for longer periods, building muscle strength and endurance. Understanding these physiological parameters and psychological skills are essential for coaches and swimmers to optimize training regimens, monitor progress, and improve overall performance in fin swimming.

Table 3
Demographic Characteristics of Athletes for Tailoring Advancement Efforts and Ensuring Sustained Public Recognition of the Sport

Themes	Recurrences	Defining Elements	Key Informant
Age and gender diversity	10	<i>“Younger athletes might require more foundational skill-building, while older athletes might focus on advanced techniques”</i>	Key Informant 1
		<i>“The diversity of webbed swimmers allows more people to see their potential in the sport, thus attracting people of different ages and sexes to participate.”</i>	Key Informant 2
		<i>“Different age groups and genders may require tailored training programs. Youth programs can foster early interest, while specific initiatives can encourage female participation, ensuring gender balance.”</i>	Key Informant 4
		<i>“Conduct popularization and training activities for people of different age groups to expand the foundation of sports. encourage balanced participation of men and women and promote the diversity of web swimming.”</i>	Key Informant 5
		<i>“Design suitable training and competition projects for different age groups, especially to attract teenagers to participate. Ensure reserve strength. to ensure the balanced development of male and female athletes and promote gender equality.”</i>	Key Informant 6
		<i>“Different age groups have different needs for training and competition. Projects designed for teenagers can produce the top athletes of the future. To ensure the balanced development of male and female athletes, and to focus on attracting more women to participate during the promotion.”</i>	Key Informant 7
		<i>“Design suitable web swimming training and competitions for people of different ages to attract more teenagers to participate. Ensure that gender balance in the process to promote the common development of male and female athletes.”</i>	Key Informant 8, 9
		<i>“By recruiting athletes of different ages, genders and backgrounds, it can demonstrate the wide adaptability of web swimming and attract more people to participate.”</i>	Key Informant 10
		<i>“Participants of different ages and sexes can increase the inclusiveness, popularity and attract more people to participate.”</i>	Key Informant 11
		<i>“Different age groups have different needs for training and competition. Projects designed for teenagers can produce the top athletes of the future. To ensure the balanced development of male and female athletes, and to focus on attracting more women to participate during the promotion.”</i>	Key Informant 12
Geographic Background	8	<i>“Promoting finswimming in regions where there’s already a strong interest can help sustain public recognition and support for the sport.”</i>	Key Informant 3
		<i>“Promoting finswimming in regions discover and develop talent from diverse backgrounds and a broader base of athletes.”</i>	Key Informant 4
		<i>“To promote web swimming events to local conditions, and to increase the holding of local competitions and activities.”</i>	Key Informant 5
		<i>“According to the characteristics of different regions, targeted to promote webbing swimming, make full use of the resources and advantages of different regions.”</i>	Key Informant 6
		<i>“According to the cultural and environmental characteristics of different regions, the targeted promotion of web swimming sports, can effectively use local resources.”</i>	Key Informant 7, 12
		<i>“According to the characteristics and needs of each region, to local conditions to enhance regional cultural identity.”</i>	Key Informant 8, 9
		<i>“According to the characteristics and advantages of each region, formulate regional development plans to promote the popularization of web swimming throughout the country.”</i>	Key Informant 10
		<i>“Differences in participation can help us better develop regional development and promotion strategies.”</i>	Key Informant 11
Total Recurrences	18		

Table 3 shows the demographic characteristics of athletes for tailoring advancement efforts and ensuring sustained public recognition of the sport with two (2) themes namely; age and gender diversity with ten (10) recurrences and geographic background with eight (8) recurrences. The total recurrences for demographic

characteristics of athletes is eighteen (18). Appreciation of the demographic characteristics of athletes and tailoring advancement efforts accordingly, swimming can ensure sustained public recognition and continued growth in participation and performance.

As indicated on the results of the present study, key informants mentioned the following categorized as age and gender diversity; “Younger athletes might require more foundational skill-building, while older athletes might focus on advanced techniques”; “The diversity of webbed swimmers allows more people to see their potential in the sport, thus attracting people of different ages and sexes to participate”; “Different age groups and genders may require tailored training programs. Youth programs can foster early interest, while specific initiatives can encourage female participation, ensuring gender balance” and “By recruiting athletes of different ages, genders and backgrounds, it can demonstrate the wide adaptability of web swimming and attract more people to participate”. Hence, it focuses that to develop programs that cater to different age groups, focusing on improving performance and addressing specific motivational factors for women and men. Encourage participation among women by providing targeted support and resources. In addition, key informants also stated that “Design suitable web swimming training and competitions for people of different ages to attract more teenagers to participate. Ensure that gender balance in the process to promote the common development of male and female athletes” and “Different age groups have different needs for training and competition. Projects designed for teenagers can produce the top athletes of the future. To ensure the balanced development of male and female athletes, and to focus on attracting more women to participate during the promotion” wherein fin swimming is an excellent way for adults to engage in physical activity, which is essential for maintaining overall health and well-being.

As to geographic background, key informants focused on “Promoting finswimming in regions where there's already a strong interest can help sustain public recognition and support for the sport”; and “According to the characteristics of different regions, targeted to promote webbing swimming, make full use of the resources and advantages of different regions”. Swimming is a popular leisure activity globally, with different regional variations. The cultural and environmental contexts in which people swim can significantly impact their experiences. Moreover, the International Swimming Federation (FINA) has specific regulations for gender categories including eligibility criteria for transgender athletes. The promotion of fin swimming through its universal appeal and health benefits despite concerning controversies and scrutiny within the sport (Lord, 2023). The use of social groups (Chen, 2023) enhances social benefits that can promote the uniqueness of fin swimming as a discipline and sport.

Table 4
Interests of Athletes for Tailoring Advancement Efforts and Ensuring Sustained Public Recognition of the Sport

Themes	Recurrences	Defining Elements	Key Informant
Interest Driven	8	<i>Recognizing and nurturing interests can help in creating programs that keep athletes engaged and motivated.</i>	Key Informant 1
		<i>When more people are interested in webbing swimming, it will drive more resources investment and promote the popularization and development of webbing swimming.</i>	Key Informant 2
		<i>If there's a growing interest among young adults in urban areas, training programs can be designed to accommodate their needs and preferences</i>	Key Informant 3
		<i>Understanding what drives athletes' interest in finswimming can help create engaging and motivating training programs, which is crucial for long-term commitment and public recognition</i>	Key Informant 4
		<i>Understand the interests of athletes and potential participants through surveys, design attractive training and competition content, and improve participation.</i>	Key Informant 6, 7, 12
		<i>Understand the interests of potential athletes through the investigation, and design attractive training and competition content.</i>	Key Informant 8,9
		<i>Focus on and cultivate potential teenagers with a strong interest in web swimming to provide more talents in the future.</i>	Key Informant 10
		<i>An increased population interested in web swimming will drive more resources to promote the development of the sport.</i>	Key Informant 11
Motivational Sources	5	<i>Personalized approach not only improves individual performance but also ensures a broader appeal and sustained public interest in finswimming.</i>	Key Informant 1
		<i>The success stories of elite athletes can inspire more people to participate in webbing swimming, increasing recognition and recognition of the sport.</i>	Key Informant 2
		<i>Design attractive events and training courses to increase public</i>	Key Informant 5

		<i>interest in swimming.</i>	
		<i>Improve public awareness and recognition of the sport by promoting the stories of elite athletes and encouraging more people to participate in web swimming.</i>	Key Informant 10
		<i>Public recognition and interest in web swimming can be enhanced by demonstrating a diverse group of athletes and their achievements.</i>	Key Informant 11
Total Recurrences	13		

Table 4 indicates the interests of athletes for tailoring advancement efforts and ensuring sustained public recognition of the sport which the researcher was able to coined two (2) themes namely; interest driven with eight (8) recurrences and motivational sources with five (5) recurrences. The total recurrences for the interests of athletes is thirteen (13). Interest-driven and motivational sources in fin swimming highlight the psychological and emotional factors that contribute to athletes' performance and engagement in the sport. Hence, understanding and leveraging intrinsic and extrinsic motivations, coaches and athletes create a more engaging and fulfilling sporting experience guided by holistic approach that fosters a lifelong love for the sport, encouraging athletes to continue swimming well beyond their competitive years.

Accordingly, the theme on interest driven shows that key informants declared *“Recognizing and nurturing interests can help in creating programs that keep athletes engaged and motivated”* and *Understand the interests of athletes and potential participants through surveys, design attractive training and competition content, and improve participation”* among other defining elements leads to exhibiting how Athletes have various interests that drive their advancement efforts and contribute to sustained public recognition because they are keenly interested in building and maintaining a strong personal brand, managing controversies and public relations effectively. In turn, this helps them secure lucrative endorsement deals and maintain a positive public image. With brand perception for fin swimming athletes can help make informed decisions about career moves, public appearances, and endorsements. Hence, there is a need to build a competitive sports landscape and maximize athletes’ marketability. Fin swimmers are interested in showcasing their personalities and interests as well as how they are perceived across different cultures and demographics. Athletes are driven by a strong sense of athletic identity that motivates them to excel and maintain a high level of performance.

The theme on motivation sources, depicts the key informants perceptions stated as to *“Personalized approach not only improves individual performance but also ensures a broader appeal and sustained public interest in finswimming”*; *“The success stories of elite athletes can inspire more people to participate in webbing swimming, increasing recognition and recognition of the sport”*; *Design attractive events and training courses to increase public interest in swimming”* *Improvement on public awareness....*; and *“public recognition and interest...”* Athletes are motivated by the desire for recognition and success in their sport including achieving personal bests, winning championships, or receiving appreciations from different stakeholders.

Athletes are interested in personal growth and development such as improving their skills, overcoming challenges, and pushing themselves to new heights which motivates them to continue striving for excellence in fin swimming. Athletes are motivated by the desire to be role models and inspire others by setting a positive example, promoting healthy lifestyles, and giving back to their communities driven by a combination of interest-driven and motivational sources. These factors help them navigate the competitive sports landscape, build a strong personal brand, and maintain a high level of performance and recognition (Li and Wang, 2022).

Table 5
Current Competitive Landscape and Strengths of Chinese Finswimmers

Theme	Recurrence	Defining Elements	Key Informant
High Level Training System	7	<i>“Chinese finswimmers are known for their strong technical skills and rigorous training regimens. We have access to advanced training facilities and experienced coaches, which gives us a competitive edge. These strengths guide our training programs to focus on maintaining high technical standards and physical conditioning.”</i>	Key Informant 1
		<i>“We have a perfect training system and advanced facilities to provide scientific training methods.”</i>	Key Informant 2, 10, 11
		<i>“The current competitive landscape for Chinese finswimmers is quite robust, with a strong emphasis on technical proficiency and physical conditioning. Finswimmers have shown remarkable discipline and dedication, which are key strengths that can guide training programs”</i>	Key Informant 3
		<i>“Access to state-of-the-art training centers helps in honing skills. A structured approach to identifying and nurturing talent from a young age that guide targeted training programs focusing on technical refinement, strength conditioning, and psychological preparation.”</i>	Key Informant 4

		<i>“Chinese swimmers have certain technical advantages in webbing swimming and other events. Strengthen the targeted training and promotion work, to improve the competitive level of athletes.”</i>	Key Informant 5
		<i>China has a scientific and systematic training system and methods. We can learn from the successful experience of traditional swimming, develop a targeted webbed swimming training plan, and improve the competitive level of athletes</i>	Key Informant 6, 7, 12
		<i>“There are systematic and scientific training methods and facilities.”</i>	Key Informant 8, 9
Experienced Coaching Team	5	<i>“Our coaches are experienced and able to provide professional guidance and high-quality training guidance.”</i>	Key Informant 1, 11
		<i>“Skilled coaches are well-versed in techniques and strategies.”</i>	Key Informant 4
		<i>“China has many outstanding swimmers and coaches.”</i>	Key Informant 5
		<i>“There are a large number of excellent swimmers and coaches resources.”</i>	Key Informant 6, 7, 8, 9, 12
		<i>We have a team of experienced coaches who can provide high quality guidance that can guide us to develop a more scientific training plan to improve the physical fitness and skills of athletes, while improving the public awareness of web swimming through promotional activities</i>	Key Informant 10
Government Support	3	<i>“The government's strong support for swimming sports provides a guarantee for our training and development.”</i>	Key Informant 2
		<i>“The government's strong support and sufficient resource investment provide good development environment for athletes”</i>	Key Informant 10
		<i>“The support of the government and relevant departments provides a solid guarantee for the development of athletes.”</i>	Key Informant 11
International Competition Experience	7	<i>“Internationally, we have a reputation for discipline and consistency. Showcasing our achievements and dedication can help draw more attention and support for the sport.”</i>	Key Informant 1
		<i>“We have accumulated rich experience in international competitions and have strong competitiveness.”</i>	Key Informant 2
		<i>“The success of Chinese finswimmers in international competitions serves as a powerful promotional tool, showcasing the talent and potential of athletes in the sport.”</i>	Key Informant 3
		<i>“In the international arena, Chinese athletes have accumulated rich competition experience.”</i>	Key Informant 5
		<i>“Chinese swimmers perform well in international and Asian competitions. The athletes have accumulated rich competition experience in the international competitions. more events and promotional activities will be held to increase public attention and participation in web swimming.”</i>	Key Informant 6, 7, 8, 9, 12
		<i>“Athletes have accumulated rich experience in international competitions and enhanced their competitiveness.”</i>	Key Informant 10
		<i>“Chinese athletes have accumulated rich experience in international competitions and have strong competitiveness.”</i>	Key Informant 11
Total Recurrences	22		

Table 5 establishes the current competitive landscape and strengths of chinese finswimmers leading to coin four (4) recurrences namely; high level training system with seven (7) recurrences, experienced coaching team with five (5) recurrences, government support with three (3) recurrences and international competition experiences with seven (7) recurrences. The total recurrences for current competitive landscape and strengths of chinese finswimmers is twenty-two (22).

The theme high level training system where key informants emphasised that *“Access to state-of-the-art training centers helps in honing skills. A structured approach to identifying and nurturing talent from a young age that guide targeted training programs focusing on technical refinement, strength conditioning, and psychological preparations”* is a necessity for international competitions. High-level training systems in fin swimming are essential for developing elite athletes capable of competing on the international stage. Competing against top athletes from around the world allows swimmers to benchmark their skills and adapt to varying race conditions. The competitive landscape of Chinese swimming fins is characterized by a strong focus on high-level training systems, experienced coaching teams, government support, and international competition experiences. The Chinese swimming fin industry has invested heavily in developing high-level training systems designed to enhance the performance of swimmers by providing them with advanced training methods and facilities to improve their overall performance and competitiveness in international competitions.

The theme experienced coaching team where key informants declared that *“Skilled coaches are well-versed in techniques and strategies”* and other statements focusing on the importance of having *“large number of excellent swimmers and coaches resources.”*. Hence, China needs strong coaching team with

extensive experience in training and mentoring swimmers because they are instrumental in developing the skills and techniques to achieve success in various competitions. Coaches with a deep understanding of the sport can tailor training programs to enhance stroke mechanics, improve body position, and refine kick techniques. Coaches can utilize fins to conduct advanced drills that focus on specific components of the stroke, enabling swimmers to achieve a more realistic feeling of speed and improve their overall technique.

The theme Government support can lead to the establishment of high-performance centers where athletes have access to state-of-the-art training equipment and resources as key informants mentioned “*“The government's strong support for swimming sports provides a guarantee for our training and development.”*” The experience and expertise of these coaches are significant strengths in the competitive landscape of Chinese swimming fins given the right support from Chinese government on the development of swimming and other aquatic sports. This support includes providing funding for training programs, facilities, and equipment. The government's involvement can create a robust infrastructure for swimming in China, help them to refine their skills and adapt to different competition environments (Chua, et. al., 2019).

Hence, a high-level training system for fin swimming integrates experienced coaching teams and government support helps athletes on their international competition experiences wherein according to key informant 3 “*“The success of Chinese finswimmers in international competitions serves as a powerful promotional tool, showcasing the talent and potential of athletes in the sport.”*”. As fin swimming continues to evolve, the focus on these key areas will be crucial for nurturing future champions since according to key informant 1 “*“Internationally, we have a reputation for discipline and consistency. Showcasing our achievements and dedication can help draw more attention and support for the sport”*”.

Table 6 shows the challenges in training methods and performance outcomes of athletes leading to coin five (5) themes as follows; training resources limitations with six (6) recurrences, shortage of qualified resources with five (5) recurrences; difficulty in handling time management with two (2) recurrences, low public awareness with five (5) recurrences, and lack of international communication with three (3) recurrences. The total recurrences in challenges in training methods and performance outcomes of athletes is twenty-one (21). The limitations in training resources, shortage of qualified personnel, time management challenges, low public awareness, and lack of international communication significantly impact the development and promotion of fin swimming.

Table 6
Challenges in Training Methods and Performance Outcomes of Athletes

Themes	Recurrence	Defining Elements	Key Informant
Training Resources Limitations	6	“One of the main challenges is the limited availability of specialized training facilities.”	Key Informant 1
		“There are fewer dedicated facilities and venues for web swimming, which affects the frequency and effect of training. Compared with the international advanced level, we have made slower progress in technology and tactics.”	Key Informant 2, 10, 11
		“One challenge is the availability of specialized training facilities and resources. Limited access to proper equipment and coaching expertise hinder the development of athletes.”	Key Informant 3
		“The lack of professional training equipment and venues, affecting the training effect of athletes.”	Key Informant 5
		“The technology and training methods of web swimming need to be further improved and scientific. the lack of high-quality webbed swimming equipment and professional training facilities, affecting the quality of training.”	Key Informant 6, 7, 8, 9, 12
		“There are relatively few web-based swimming training facilities and dedicated venues, which limits the training opportunities of athletes.”	Key Informant 11
Shortage of Qualified Coaches	5	“There is a shortage of qualified coaches who have specific expertise in finswimming.”	Key Informant 1
		“The number and quality of webbed swimming coaches need to be improved, which affects the quality of training.”	Key Informant 2
		“Not all regions have equal access to high-quality facilities and equipment.”	Key Informant 4
		“The quantity and quality of professional coaches and referees need to be improved, which affects the fairness of training and competition.”	Key Informant 10
		“The number of web swimming coaches is limited, the professional level is uneven, affecting the quality of training.”	Key Informant 11
Difficulty in Handling Time Management	2	“Balancing academic commitments with rigorous training schedules is another significant challenge for young athletes”	Key Informant 1
		“Balancing training schedules with academic or professional commitments can be challenging for athletes, affecting their performance outcomes.”	Key Informant 3
Low Public Awareness	5	“Web swimming is not well known in the public, which affects the exploration and cultivation of talents.”	Key Informant 2,

			10
		“Finswimming is not as widely recognized as other sports, leading to less support and sponsorship”	Key Informant 4
		“The public does not know much about swimming, and the limited publicity of related competitions and activities is limited, leading to the low popularity of swimming.”	Key Informant 5
		“The public awareness of web swimming is not high, the number of participants is small, it is difficult to form a scale effect.”	Key Informant 6, 7, 8, 9, 12
		“The popularity and recognition of web swimming in the public is not high, which affects the exploration and cultivation of talents.”	Key Informant 11
Lack of International Communication	3	“Increasing competitiveness at the international level requires continuous improvement and innovation in training methods.”	Key Informant 4
		“As the international level is constantly improving, the athletes face greater competitive pressure.”	Key Informant 5
		“Less communication and competition opportunities with the world's top web swimming level, which limits technical improvement and experience accumulation.”	Key Informant 6, 7, 8, 9, 12
Total Recurrences	21		

The theme on training resources for fin swimming can be limited due to financial constraints, availability of facilities, and access to specialized equipment which is according to key informant 1 “*One of the main challenges is the limited availability of specialized training facilities*” and key informant 3 “*One challenge is the availability of specialized training facilities and resources. Limited access to proper equipment and coaching expertise hinders the development of athletes*”. The effective use of swimming fins can enhance training by improving propulsion, muscle strength, and overall technique. However, without adequate access to training resources, athletes may struggle to optimize their training and hinder performance improvements and reduce the overall competitiveness of athletes on both national and international stages. The availability and quality of training facilities can significantly impact an athlete's performance. Insufficiency of resources can hinder an athlete's ability to train effectively. Hence, the use of advanced technology and equipment can enhance training outcomes. However, the lack of access to these tools, advanced technology and equipment can create a significant disadvantage.

The theme shortage of qualified coaches was coined based on the key informants' views wherein according to key informant 1 “*There is a shortage of qualified coaches who have specific expertise in finswimming*”. The complexity of fin swimming requires knowledgeable instructors who can provide proper guidance on technique, safety, and performance enhancement. In addition, the quality of coaching and mentorship can greatly influence an athlete's performance. Another challenge is the shortage of qualified coaches and mentors that can lead to inadequate guidance and support, negatively impacting an athlete's progress. With this, it is necessary that the government to support the availability of specialized experts, such as nutritionists and fitness coaches because with the shortage of these resources can hinder an athlete's ability to optimize performance through proper nutrition and fitness planning.

The theme about difficulty on handling time management is evident based on the key informants responses wherein key informant 1 mentioned that “*Balancing academic commitments with rigorous training schedules is another significant challenge for young athletes*”. Moreover, fin swimming training requires significant time investment, and athletes often face challenges in scheduling practice sessions, especially when training facilities are limited or when they have other responsibilities such as school or work. It is also well noted that effective time management is essential for athletes to balance their academics, training and recovery. Given poor time management can lead to overtraining, fatigue, and decreased performance. This can be avoided if there is coordinating training sessions, competitions, and other activities.

The theme low public awareness such as what the key informants 2 and 10 mentioned that “*Web swimming is not well known in the public, which affects the exploration and cultivation of talents*” and “*The public awareness of web swimming is not high, the number of participants is small, it is difficult to form a scale effect*” from key informants 6, 7, 8, 9, 12. The general public may not fully comprehend the importance of various training methods for fin swimmers. This lack of awareness can hinder an athlete's ability to access the right training resources and support and create misconceptions about training methods and their benefits can lead to ineffective training practices. Public awareness campaigns educate athletes and the general public about the importance of proper fin swimming training methods. International communication is to coordinate and collaborate with other athletes, coaches, and experts. Public awareness of fin swimming is generally low compared to other aquatic sports, which can affect participation rates and funding opportunities. Increased visibility and understanding of the sport can lead to greater interest and investment.

Accordingly, the theme about lack of international communication was coined from the key informants' insights to include *“Increasing competitiveness at the international level requires continuous improvement and innovation in training methods”*; *“As the international level is constantly improving, the athletes face greater competitive pressure”* and *“Less communication and competition opportunities with the world's top web swimming level, which limits technical improvement and experience accumulation.”* A lack of effective communication can hinder the sharing of knowledge, best practices, and strategies, negatively impacting performance. International competition requires athletes to be aware of and adapt to different training methods, environments, and strategies wherein inadequate communication can lead to a lack of preparedness and decreased performance in global competitions. It is necessary that the government, athletes, coaches, and support staff must work together to develop effective strategies for overcoming these obstacles and achieving optimal performance outcomes.

A lack of effective communication channels between countries can lead to isolated development practices, limiting the exchange of best practices and innovations in training. Hence, collaborative efforts, such as international competitions and training camps, can foster a sense of community among fin swimmers and coaches, promoting knowledge sharing and enhancing the overall quality of the sport.

Technical characteristics of competitive fin swimming (Li & Wang, 2022) is affected by these challenges giving rise to explore innovative techniques (Chen, 2021). High-level fin swimmers need to overcome these challenges to developed technical, physiological and psychological skills (Wang, et. al, 2020) that can be reflected across various training intensities (Liu, 2023). Addressing resource limitations, qualified personnel shortages, time management issues, low public awareness, and lack of international communication, the stakeholders can enhance the training environment, foster athlete development, and ultimately elevate the sport on a global scale.

Table 7 presents the role of mental preparation and psychological resilience in overcoming these challenges giving the researcher to coin the following themes; strong mindset development with nine (9) recurrences, accelerate recovery with five (5) recurrences, and enhance confidence with four (4) recurrences. The total recurrences on the role of mental preparation and psychological resilience is eighteen (18).

Table 7
Role of Mental Preparation and Psychological Resilience

Themes	Recurrences	Defining Elements	Key Informant
Strong Mindset Development	9	<i>“Mental preparation and psychological resilience are crucial for handling the pressures of competition and training. Techniques like visualization, goal setting, and mindfulness can help us stay focused and calm under pressure.”</i>	Key Informant 1
		<i>“Improve my ability to work under pressure: good psychological preparation helps me keep calm and play my best in high-pressure competitions.”</i>	Key Informant 2, 11
		<i>“Developing a strong mindset helps athletes navigate challenges such as setbacks, injuries, and performance pressure. Techniques like visualization, goal-setting, and mindfulness can enhance focus and confidence, ultimately leading to improved performance outcomes.”</i>	Key Informant 3
		<i>“Techniques like mindfulness and visualization help manage competitive stress and maintain focus.”</i>	Key Informant 4
		<i>“Psychological preparation can help athletes better cope with the pressure in competition and training and maintain good competitive state. In the face of challenges, psychological resilience can help athletes adjust their mentality more quickly and cope with various changes and difficulties.”</i>	Key Informant 5
		<i>“Improve athletes' ability to cope with stress and setbacks, help them maintain a positive attitude in the face of challenges, and continuously optimize their performance.”</i>	Key Informant 7, 8, 9, 12
		<i>“Through systematic psychological training, improve the athletes' concentration, confidence and adaptability in the competition.”</i>	Key Informant 6, 7, 8, 9, 12
		<i>“Good psychological preparation helps athletes stay calm and perform at the best.”</i>	Key Informant 10
		<i>“A stable mental state and positive emotions help athletes to become more focused and efficient in training.”</i>	Key Informant 11
Accelerate Recovery	5	<i>“Building resilience helps us recover from setbacks more quickly and maintain a positive outlook, which is essential for long-term success and optimal performance.”</i>	Key Informant 1
		<i>“My resilience helps me adjust quickly when I encounter setbacks and continue to focus on training and competition.”</i>	Key Informant 2, 10
		<i>“Mental preparation and psychological resilience are crucial aspects of finswimming.”</i>	Key Informant 3
		<i>“Resilience training helps athletes quickly recover from setbacks and maintain</i>	Key

		<i>high performance. Integrating these psychological aspects into training programs can optimize performance evaluation and outcomes.</i>	Informant 4
		<i>“Psychological resilience helps athletes recover quickly during setbacks or valleys and maintain continuous high levels of performance.”</i>	Key Informant 11
Enhance Confidence	4	<i>“My positive mental state makes me more confident to face the challenges, so as to improve the training effect and competition performance.”</i>	Key Informant 2
		<i>“Mental training can enhance self-belief and performance under pressure.”</i>	Key Informant 4
		<i>“Through psychological training, athletes can improve their self-confidence and give better play to their own level.”</i>	Key Informant 5
		<i>“Through psychological training, athletes can build greater confidence and focus, which helps to improve their overall performance.”</i>	Key Informant 10
Total Recurrences	18		

Strong mindset development, accelerating recovery, and enhancing confidence in fin swimming are crucial for athletes looking to improve their performance and overall experience in the water. The theme strong mindset in fin swimming needs resilience, mental preparation, focus and concentration wherein key informant 1 mentioned *“Mental preparation and psychological resilience are crucial for handling the pressures of competition and training. Techniques like visualization, goal setting, and mindfulness can help us stay focused and calm under pressure”* and key informant 5 *“Psychological preparation can help athletes better cope with the pressure in competition and training and maintain good competitive state. In the face of challenges, psychological resilience can help athletes adjust their mentality more quickly and cope with various changes and difficulties.”* Fin swimmers must develop resilience to handle setbacks, disappointments, stress and pressure to perform consistently at a high level like bouncing back from adversity, staying motivated, and maintaining a positive attitude. Visualizing success, setting goals, and creating pre-race routines help swimmers enter a focused and confident state of mind enhancing performance and reduces anxiety while maintaining focus and concentration during competition. Techniques like staying present in the moment, blocking out distractions, and maintaining internal focus help swimmers perform at their best. Hence, developing a growth mindset, as opposed to a fixed mindset, allows swimmers to embrace challenges, learn from failures, and persist through difficulties.

The theme accelerating recovery needs imagery training and stress management. Imagery training simulates competition scenarios, allowing swimmers to rehearse and improve their performance under high-pressure conditions leading to physical and mental preparedness which coincide the defininf elements like what key informant 1 mentioned *Building resilience helps us recover from setbacks more quickly and maintain a positive outlook, which is essential for long-term success and optimal performance”* and key informant 4 *“Resilience training helps athletes quickly recover from setbacks and maintain high performance. Integrating these psychological aspects into training programs can optimize performance evaluation and outcomes”*. On the other hand, this also helps in reducing anxiety and improving recovery using techniques like deep breathing, mindfulness, and mental imagery as well as reduces physical and mental fatigue, accelerating recovery. Ergo, effective recovery strategies can enhance performance and reduce the risk of injury. Prioritizing sleep and rest is essential for optimal recovery and performance. Incorporating mental training exercises can help athletes improve their focus, response times, and overall performance while providing athletes with personalized nutritional guidance. In addition, implementing strategies to prevent and manage injuries can help ensure fin swimmers to participate in competitions and maintain their performance levels.

The theme about enhancing confidence ultimately improve performance in fin swimming as sport through communication and goal setting which is important for fin swimmers in which key informant 5 states *“Through psychological training, athletes can improve their self-confidence and give better play to their own level.”* Positive self-talk and belief in one's abilities significantly impact mental toughness and overall success building confidence and maintain a positive mindset. Setting clear, challenging goals and staying disciplined in training regimens helps swimmers stay motivated and focused leading to high confidence and effective overall performance. Building confidence involves both mental preparation and physical readiness.

Competitive fin swimmers must enhance their overall performance outcomes (Zhang, et. al., 2021) with proper strategies (Sun, et. al., 2020) through training methods to address well-being and alleviate pressure among athletes. The optimization of training programs for high-level fin swimmers (Xu & Li, 2022) shall exhibit to meet the specific needs of elite athletes in fin swimming. The concept of scientific periodization in fin swimming training maximize performance outcomes of athletes. However, equipment limitations on training effectiveness and performance outcomes hinders athletes to reach their full potential (Li and Liu, 2020). Tailored training methods in fin swimming (Zhao and Liu, 2023) should be anchored on mental preparation an psychological resilience with proper strategies (Li and Wang, 2022) which includes the use of a comprehensive mental training program with emphasis on relaxation exercises, positive visualization, goal-setting, stress management strategies, and mindfulness aimed at alleviating competitive anxiety among fin swimmers (Zhang,

et. al., 2021). Developing a strong mindset, implementing effective recovery strategies, and enhancing confidence are interconnected elements that contribute to success in fin swimming wherein swimmers can improve their performance and enjoyment of the sport.

Table 8
Government's Current Initiatives and Future Strategies for Development

Themes	Recurrence	Defining Elements	Key Informant
Investment for Infrastructure and Other Resources	8	<i>"The government has been supportive in providing funding for facilities and organizing competitions, but there is always room for improvement. Increased funding for advanced training facilities and support for international competition participation is beneficial."</i>	Key Informant 1
		<i>"Investment for construction of web swimming facilities and event organization to support the development of web swimming at the grassroots and less developed areas to ensure a balanced distribution of resources."</i>	Key Informant 2
		<i>"Increasing funding for training facilities, coaching programs, and athlete development initiatives is essential."</i>	Key Informant 3
		<i>"Increased financial investment in facilities, equipment, and training programs"</i>	Key Informant 4
		<i>"Increase the investment in professional training facilities and sites to improve the training conditions."</i>	Key Informant 5
		<i>"Increase financial support for web swimming to improve the quality of training and competition facilities."</i>	Key Informant 6, 7, 8, 9, 11
		<i>"To support the infrastructure construction and the event organization especially support to the grassroots and underdeveloped areas to ensure a balanced distribution of resources. Investment in scientific research of web swimming, and improve the scientific nature of training and competition."</i>	Key Informant 10, 11
		<i>"To support the construction of web swimming infrastructure and sports events."</i>	Key Informant 11
Policy Support	7	<i>"More investment is needed in grassroots programs to identify and nurture young talent."</i>	Key Informant 1
		<i>"Formulate policies to encourage the development of web swimming, improve the treatment and guarantee of athletes."</i>	Key Informant 2
		<i>"Support athletes and coaches to participate in international competitions and training, and improve their technical level. increase investment in scientific research, improve the scientific nature of training and competition."</i>	Key Informant 2, 10, 11
		<i>"Initiatives to introduce finswimming at the school and community programs."</i>	Key Informant 4
		<i>"More preferential policies will be introduced to encourage sports institutions and social forces at all levels to participate in the promotion and development of web swimming."</i>	Key Informant 6, 7, 8, 9, 11
		<i>"To support the development and guarantee of athletes through policies."</i>	Key Informant 10
		<i>"Encourage the development of webbing swimming, improve the treatment and guarantee of athletes through policy support."</i>	Key Informant 11
Promotional Activities	7	<i>"More initiatives to raise public awareness about finswimming can help attract new athletes and fans."</i>	Key Informant 1, 11
		<i>"Organize web swimming promotion activities to increase public attention."</i>	Key Informant 2
		<i>"Promoting finswimming through educational campaigns and community outreach programs help raise awareness and participation in sport"</i>	Key Informant 3
		<i>"National campaigns to raise awareness and promote finswimming."</i>	Key Informant 4
		<i>"Increase the publicity of the web swimming project to raise the public awareness of the project."</i>	Key Informant 5
		<i>"Use various media and platforms to increase the publicity of web swimming and improve public awareness."</i>	Key Informant 6, 7, 8, 9, 11
		<i>"Organize various promotion activities to raise public attention."</i>	Key Informant 10
Professional Development	3	<i>"Strengthen the training of web swimming coaches to improve their professional level."</i>	Key Informant 2

		<i>“To support more competitions and activities to increase the competitive opportunities of athletes.”</i>	Key Informant 5
		<i>“Strengthen the training of professional coaches and referees to improve their professional level.”</i>	Key Informant 10, 11
Total Recurrences	25		

Table 8 government's current initiatives and future strategies for finswimming development which leads the researcher to create four (4) themes namely; Investment for Infrastructure and Other Resources with eight (8) recurrences, policy support with seven (7) recurrences, promotional activities with seven (7) recurrences, professional development with three (3) recurrences. The total recurrences for government's current initiatives and future strategies for finswimming development is twenty-five (25).

The theme investment in infrastructure and resources requires a multifaceted approach that encompasses policy support, promotional activities, and professional development wherein key informant 2 mentioned that *“Investment for construction of web swimming facilities and event organization to support the development of web swimming at the grassroots and less developed areas to ensure a balanced distribution of resources”*. Investment in infrastructure is critical for enhancing the capabilities and accessibility of facilities. The Chinese government has been promoting the development of fin swimming in the country through various initiatives and strategies despite several challenges. Investments in building modern swimming facilities and infrastructure across the country like constructing new swimming pools, renovating existing ones, and upgrading facilities to international standards is necessary to answer the public awareness about fin swimming as a discipline and sport. The Chinese government aimed to promote non-traditional sports like fin swimming by supporting scientific research and development like biomechanics, physiology and sports medicine to improve swimming techniques and enhance the overall performance of its swimmers.

The theme policy support expresses effective policy frameworks are essential for fostering an environment conducive to investment in swimming infrastructure. However, according to key informant 1 *“More investment is needed in grassroots programs to identify and nurture young talent.”* As regards to policy support, the establishment of the National Swimming Team and the creation of a comprehensive management structure gives a strong emphasis on national team performance and international competitions. The Chinese government has actively promoted swimming through media coverage, highlighting the achievements of Chinese swimmers and the growth of the sport in the country.

The theme promotional activities are vital for raising awareness and attracting investment in swimming infrastructure which is supported according to key informants 1 and 11, *“More initiatives to raise public awareness about finswimming can help attract new athletes and fans”*. However, initiatives for the grassroots needs more public awareness as to fin swimming participation and development at the local level. The Chinese government has invested in coaching and training programs for swimmers, however the need for the development of specialized training facilities and the hiring of international coaches for fin swimming needs more attention. Developing its fin swimming talent through programs aimed to promote non-traditional sports as well as sports science and medicine research to improve the performance and over all well-being. Implementation of a comprehensive strategy to develop fin swimming in the country should focus on infrastructure development, policy support, promotional activities, and professional development to ensure growth and success in the fin swimming as a sport and discipline.

The theme professional development ensure that the workforce involved in managing and operating swimming facilities is well-trained and capable as mentioned by key informants 10 and 11, *“Strengthen the training of professional coaches and referees to improve their professional level”*. Hence, a comprehensive approach that integrates investment in infrastructure, supportive policies, targeted promotional activities, and professional development is essential for advancing fin swimming initiatives.

Common challenges in fin swimming include government policy formulation and capital investment imbalance, limited social attention, low industrialization, and barriers to talent team construction, which hinder competition advancement. However, the Chinese government have exerted efforts to address these challenges which requires other stakeholders participation. To address the imbalance between government policy formulation and capital investment in fin swimming there is a need to strengthen government capacities for public investment and promote policy learning. Assessing the long-term impacts and risks, develop a fiscal framework in fin swimming, and strengthen capacities for fin swimming infrastructure and development. The government can better align its policy formulation with the capital investment needs of the fin swimming sector helping to address the current imbalance.

Table 9
Areas to Enhance Mental Preparation and Psychological Resilience

Themes	Recurrences	Defining Elements	Key Informant
Psychological Counseling	4	<i>“Providing access to sports psychologists and mental health resources would be very helpful.”</i>	Key Informant 1
		<i>“To provide professional psychological counseling and support services to help us cope with stress and anxiety.”</i>	Key informant 2, 9, 10
		<i>“Providing athletes with regular sessions with sports psychologists.”</i>	Key Informant 4
		<i>“Provide professional psychological counseling and support services to help athletes cope with stress and frustration.”</i>	Key Informant 5, 6, 7, 8, 11
Education and Training	6	<i>“Team building activities, enhance our cohesion and team spirit. Education and training to carry out mental health education to improve our psychological quality and coping ability.”</i>	Key Informant 2
		<i>“Workshops and seminars on mental skills training for athletes, coaches, and even parents can create a supportive environment”</i>	Key Informant 1
		<i>“Offering workshops and seminars on mental skills training and resilience-building can benefit athletes at all levels.”</i>	Key Informant 3
		<i>“Regular workshops on stress management, mental resilience, and performance psychology.”</i>	Key Informant 4
		<i>“The psychological training course is introduced into the school physical education curriculum to cultivate the students' psychological quality. to provide coaches and athletes with professional training in psychological training, so that they can better cope with the psychological challenges in training and competition.”</i>	Key Informant 5, 6, 7, 8, 11
		<i>“Enhance team cohesion and cooperation spirit through team building activities. Psychological education: to carry out mental health education to improve the psychological quality and coping ability of athletes.”</i>	Key Informant 9, 10
Family and other Stakeholder Support	4	<i>“Through parent education and training, improve the family support and understanding of us, and create a good family environment.”</i>	Key Informant 2, 9, 10
		<i>“Collaboration between sports organizations, schools, and mental health professionals can ensure comprehensive support for athletes' mental well-being.”</i>	Key Informant 1
		<i>“Collaborating with sports psychologists and mental health professionals that can provide valuable resources for athletes. creating a supportive team environment where athletes can openly discuss and address mental health challenges is crucial for fostering resilience.”</i>	Key Informant 3
		<i>“Creating platforms for athletes to share experiences and support each other.”</i>	Key Informant 4
Total Recurrences	14		

Table 9 shows areas to enhance mental preparation and psychological resilience with the following themes; psychological resilience with four (4) recurrences, education and training with six (6) recurrences, family and other stakeholder support with four (4) recurrences. The total recurrences to enhance mental preparation and psychological resilience is fourteen (14).

The theme psychological counselling focuses on the results of the study wherein *“Providing access to sports psychologists and mental health resources would be very helpful”* mentioned by key informant 1 among similar defining elements indicates need for continuous enhancement. Athletes face intense competition and the psychological demands of maintaining focus and performance under pressure. Athletes can develop resilience through consistent practice, which enhances their self-esteem and confidence.

The theme education and training programs for fin swimmers should incorporate mental skills training alongside physical conditioning. As suggested by key informant 3 *Offering workshops and seminars on mental skills training and resilience-building can benefit athletes at all levels”* and *“The psychological training course is introduced into the school physical education curriculum to cultivate the students' psychological quality. to provide coaches and athletes with professional training in psychological training, so that they can better cope with the psychological challenges in training and competition”* by Key Informant 5, 6, 7, 8, 11. With this, coaches play a pivotal role in this process by providing psychological support and helping athletes develop coping strategies for high-pressure situations. Regular discussions with coaches and teammates about experiences and strategies can further reinforce these skills, creating a supportive training environment. Coaches can provide personalized feedback, help athletes develop mental skills, and enhance their overall performance. Regular, consistent training and practice help fin swimmers develop the physical and mental skills necessary to perform well under pressure.

Fin swimmers need to develop mental toughness to handle the intense and fast-paced environment of fin swimming including cultivating emotional flexibility, emotional responsiveness, emotional strength, and emotional resilience. Hence, mental toughness training helps fin swimmers manage pressure, stay focused, and maintain confidence. Adopting a growth mindset can help fin swimmers view challenges as opportunities for growth and improvement. Examples are reframing negative thoughts, focusing on progress rather than outcomes, and developing a sense of self-efficacy. Having a good mindset can help fin swimmers build psychological resilience and stay motivated guided by experienced coaches who can identify and address psychological deficiencies.

The theme about support from family and friends is helping fin swimmers maintain a positive outlook and stay motivated while managing setbacks and maintain a resilient mindset. This is supported by the insights provided by key informants 2, 9 and 10 stating that, *“Through parent education and training, improve the family support and understanding of us, and create a good family environment”*. A positive team environment can foster a sense of camaraderie and shared goals, develop mental skills and build confidence. enhancing mental preparation and psychological resilience in fin swimming requires mental toughness training, reframing and growth mindset, coaching and guidance, sport psychology resources, regular training and practice, and support from family and other stakeholders. Hence, families can provide emotional support and encouragement, helping athletes navigate the stresses of training and competition. The collective effort of families, coaches, and the community is crucial in nurturing the mental toughness required to excel in the demanding sport of fin swimming.

Table 10
Suggestions to Improve the Performance of Athletes and Increase Public Recognition of Fin swimming as a Sport and Discipline

Themes	Recurrences	Defining Elements	Key Informant
Enhance Training Program	2	<i>“To improve athlete performance, it's important to ensure access to high-quality training facilities and experienced coaches.”</i>	Key Informant 1
		<i>“Providing athletes with access to state-of-the-art facilities and equipment can also enhance their training experience.”</i>	Key Informant 3
Cultivate Grassroots Talents	3	<i>“Grassroots promotion in schools and communities.”</i>	Key Informant 1
		<i>“Establish a perfect echelon construction, cultivate more grassroots webbed swimming talents.”</i>	Key Informant 2, 9, 10
		<i>“To increase public recognition, promoting finswimming through grassroots initiatives”</i>	Key Informant 3
Use of Technology	2	<i>“Incorporating the latest sports science and technology can also give athletes an edge.”</i>	Key Informant 1, 4
		<i>“To improve athlete performance, investing in advanced training methodologies and sports science research is crucial.”</i>	Key Informant 3
Strengthen Publicity	5	<i>“For increasing public recognition, we need more media coverage of finswimming events, engaging storytelling about athletes.”</i>	Key Informant 1
		<i>“Use media and social platforms to promote elite athletes and competitions, to enhance public awareness of web swimming. To promote web swimming in schools and communities to attract more young people to participate.”</i>	Key Informant 2, 9, 10
		<i>“To increase public recognition, promoting finswimming through media coverage, and partnerships with schools and communities can help raise awareness and attract new participants to the sport.”</i>	Key Informant 3
		<i>“Use social media and traditional media to highlight finswimming events and athlete achievements. Organize community events, workshops, and exhibitions to promote finswimming.”</i>	Key Informant 4
		<i>“Use the media and social platforms to promote web swimming, tell the stories of excellent athletes, and attract more people's attention. Web swimming in communities, schools and businesses to get more people out and try the sport.”</i>	Key Informant 5, 6, 7, 8, 11
Improve Events Quality	4	<i>“Hosting national and international competitions can also raise the sport's profile.”</i>	Key Informant 1
		<i>“Hold high-level domestic and foreign events to enhance the influence and attraction of web swimming.”</i>	Key Informant 2, 9, 10
		<i>“Increase the number of local and national competitions to keep athletes motivated and engaged.”</i>	Key Informant 4
		<i>“Hold webbing swimming competitions at all levels to increase the practical experience of athletes and attract the attention of the audience and media.”</i>	Key Informant 5, 6, 7, 8, 11
Total Recurrences	16		

Table 10 is about suggestions to improve the performance of athletes and increase public recognition of finswimming as a sport and discipline having the following themes; enhance training program with two recurrences, cultivate grassroots talents with three (3) recurrences, use of technology with two (2) recurrences, strengthen publicity with five (5) recurrences, and improve events quality with four (4) recurrences. The total recurrences for suggestions to improve the performance of athletes and increase public recognition of finswimming as a sport and discipline is sixteen (16).

The theme enhance training program emphasized by the various statements like what key informant 3 mentioned “*Providing athletes with access to state-of-the-art facilities and equipment can also enhance their training experience*”. Varying workouts is essential to avoid plateaus and keep the body adapting to different demands to have the strength needed in training and competition to improve overall fitness and performance. Keeping track of performance through the use of technology such as fitness watches or apps, helps athletes analyze and adjust training to optimize progress. Incorporating functional exercises and changing up workouts regularly can help fin swimmers improve overall performance as well as gauging their improvement and identify areas for improvement.

The theme cultivates the grass roots is supported by statements from the participants wherein according to key informant 2, 9 and 10, “*Establish a perfect echelon construction, cultivate more grassroots webbed swimming talents*”. This will help those who have no access to the sport or hesitant due to financial concerns.

The theme use of technology is an area that needs continuous enhancement as cited by key informant 1 and 4, “*Incorporating the latest sports science and technology can also give athletes an edge*”. Technology has played a significant role in the evolution of fin swimming, from the materials used in fin construction to the data analytics that help swimmers optimize their training and performance. Modern fins are now made from advanced materials like carbon fiber, which offer increased flexibility, durability, and propulsive power Use of wearable technology and performance monitors, allows swimmers to track their progress with precision, making each training session more effective. Technology like sensors and smart systems can provide athletes with performance metrics and monitor their performance to have a data-driven decision to optimize their training. Proper hydration and nutrition are crucial for optimal performance.

The theme to strengthen publicity wherein it was emphasized by key informants 2, 9 and 10, “*Use media and social platforms to promote elite athletes and competitions, to enhance public awareness of web swimming. To promote web swimming in schools and communities to attract more young people to participate*”: and key informants 6, 7, 8, and 11 which is “*Use the media and social platforms to promote web swimming, tell the stories of excellent athletes, and attract more people's attention. Web swimming in communities, schools and businesses to get more people out and try the sport*”. Fin swimming has the potential to attract a wider audience and increase participation through strategic publicity and event enhancements. Collaborative collection through partnerships between fin swimming brands and popular athletes or designers can support public awareness of the sport. Incorporating fins into swim workouts adds a unique element of variety, keeping swimmers engaged and motivated as they pursue their goals in the sport. Utilizing social media and creating an online presence can help finswimming gain more visibility and attract new participants including those in the grass roots.

The theme improve quality events is based on several information from participants such as “*Hold webbing swimming competitions at all levels to increase the practical experience of athletes and attract the attention of the audience and media*” by key informants 5, 6, 7, 8 and 11. Educating athletes and the public about the fin swimming can help improve overall performance and increase recognition of as a sport. Quality events can lead to strengthening publicity as well.

Table 11 focuses on the assessment of the level of awareness of the sport's popularity leading to the following themes; use of surveys and analytics with five (5) recurrences, conduct of marketing campaigns and educational program with one (1) recurrence, media coverage and other online platforms with four (4) recurrences. The total recurrences for assessment of the level of awareness of the sport's popularity is ten (10).

Table 11
Assessment of the Level of Awareness of the Sport's Popularity

Themes	Recurrences	Defining Elements	Key Informant
Use of surveys and analytics	5	<i>“This can be gauged through surveys and social media analytics, which show limited engagement compared to more mainstream sports.”</i>	Key Informant 1
		<i>“Survey people of different ages and regions to understand their knowledge and interest in swimming. Count the number of participants in various webbing swimming events and training classes.”</i>	Key Informant 2, 10
		<i>“Assessing the level of awareness among the general public can be done through surveys, social media analytics, and participation rates in finswimming events. These metrics can provide insights into the sport's popularity and help identify areas for improvement in promotional efforts.”</i>	Key Informant 3

		<i>“Conducting regular surveys to measure public interest and knowledge of finswimming. Tracking the number of participants in finswimming programs and events.”</i>	Key Informant 4
		<i>“Through online and offline questionnaires, to understand the public's awareness and interest in web swimming. count the number of participants in web swimming training courses, competitions and activities and their trends.”</i>	Key Informant 5, 6, 7, 8, 9, 11
Conduct of Marketing Campaigns and Educational Program	1	<i>“Increasing awareness through targeted marketing campaigns and educational programs can help boost the sport's popularity.”</i>	Key Informant 1
Media Coverage and other online platforms	4	<i>Evaluate the frequency and depth of media coverage. Analyze the discussion and attention of web swimming on social media.”</i>	Key Informant 2, 9, 10
		<i>“Analyzing media coverage, social media engagement, and online search trends related to finswimming.”</i>	Key Informant 4
		<i>“To assess the public perception of web swimming by analyzing the discussion and awareness on social media.”</i>	Key Informant 5, 6, 7, 8, 9, 11
		<i>“Analyze the discussion and attention of web swimming on social media.”</i>	Key Informant 10
Total Recurrences	10		

The theme used of survey and analytics is gleaned on the statements by key informants such as 5, 6, 7, 8, 9, and 11 which states that *“Through online and offline questionnaires, to understand the public's awareness and interest in web swimming. count the number of participants in web swimming training courses, competitions and activities and their trends”* and among other defining elements. Surveys are essential for gathering data on swimmer preferences, performance, and the effectiveness of training methods. Analytics derived from these surveys can help coaches and trainers adjust their training methodologies based on quantitative data, leading to improved outcomes. The assessment of the level of awareness of a sport's popularity involves a multi-faceted approach that incorporates various methods to gauge the familiarity and recognition of the sport among the target audience. Conducting online and offline surveys help in measuring the level of recognition and recall among the target audience. Advanced analytics tools can provide deeper insights into the success of marketing campaigns. These campaigns can include targeted advertising, social media promotions, and influencer partnerships to reach a wider audience.

The themen conduct of marketing campaigns and educational programs emphasized ny key informant 1 states that *“Increasing awareness through targeted marketing campaigns and educational programs can help boost the sport's popularity”*. Marketing campaigns in the fin swimming sector can leverage insights gained from surveys and analytics. Programs can be designed to educate swimmers on the proper use of fins, the biomechanics of swimming with fins, and the physiological benefits of fin training. This educational outreach can help foster a new generation of swimmers who are knowledgeable about the advantages of using fins. Coverage of competitions, training sessions, and athlete performances can inspire new participants and raise awareness about the sport. Educational programs can include workshops, training sessions, and community outreach initiatives to engage with fans and promote the sport.

The theme media coverage and other online platforms can help in assessing sports popularity as key informant 5, 6, 7, 8, 9, and 11 speaks of *““To assess the public perception of web swimming by analyzing the discussion and awareness on social media”*. Media coverage includes television broadcasts, print media, and online publications that provide coverage of the sport. Social media platforms provide a direct and interactive channel for organizations to engage with fans, share content, and build brand loyalty. Segmenting the audience based on demographics, psychographics, and behavioral patterns allows for tailored marketing messages that resonate with specific interests. Monitoring social media conversations and sentiment analysis helps in understanding fan reactions and opinions, allowing for targeted marketing efforts.

Table 12 presents the potential areas for promotion and addressing misconceptions of finswimming with the following themes; education system with six (6) recurrences, stakeholder involvement with six (6) recurrences and cultivation of professional talents with six (6) recurrences. The total recurrences for potential areas for promotion and addressing misconceptions of finswimming is eighteen (18). Training programs must be structured to include not only the physical techniques of fin swimming but also the theoretical knowledge necessary for effective practice. Moreover, the integration of fins wimming into physical education curricula can promote early engagement with the sport. Stakeholder involvement includes collaboration between educational institutions, sports federations, coaches, and parents, among others. Furthermore, community engagement initiatives can raise awareness about fin swimming and its benefits, attracting more participants and fostering a

supportive environment for talent development. The cultivation of professional talents in fin swimming requires a systematic approach to training and development.

Table 12
Potential Areas for Promotion and Addressing Misconceptions of Finswimming

Themes	Recurrences	Defining Elements	Key Informant
Education System	6	<i>“Potential areas for promotion include social media platforms, partnerships with schools, and community events. It’s also important to address misconceptions, such as the idea that finswimming is just for elite athletes or that it’s not as exciting as other water sports.”</i>	Key Informant 1
		<i>“Add the webbing swimming program to the school physical education course to cultivate students’ interest and skills.”</i>	Key Informant 2, 9, 10
		<i>“Increase the construction and maintenance of special facilities for web swimming, and improve the training conditions.”</i>	Key Informant 2
		<i>“Addressing misconceptions about the sport, such as its accessibility and inclusivity, can help attract a broader audience and encourage participation”</i>	Key Informant 3
		<i>“Introducing finswimming in schools and youth clubs to build a strong foundation. Inform the public about the benefits and unique aspects of finswimming. Conduct workshops and demonstrations to provide hands-on experience and dispel myths about the sport.”</i>	Key Informant 4
		<i>“Promote web swimming courses in primary and secondary schools to cultivate adolescent interests and skills. carry out web swimming experience and training activities in the community to expand the participation group.”</i>	Key Informant 5, 6, 7, 8, 11
Stakeholder Involvement	6	<i>“By highlighting the inclusivity and dynamic nature of finswimming, we can encourage more participation.”</i>	Key Informant 1
		<i>“Hold web swimming experience activities in the community to attract more residents to participate. Cooperate with enterprises to conduct brand promotion and sponsorship, and expand the influence of web swimming.”</i>	Key Informant 2, 9, 10
		<i>“The government and enterprises work together to increase investment in web swimming to ensure adequate resources.”</i>	Key Informant 2
		<i>“Additionally, partnering with schools and community organizations to offer finswimming programs and events can help foster interest and awareness in the sport.”</i>	Key Informant 3
		<i>“Involving popular athletes and celebrities to raise the sport’s profile. Partnering with other sports organizations and events to increase visibility.”</i>	Key Informant 4
		<i>“Cooperate with enterprises to carry out sponsorship and promotion activities, and increase resource input. Seek more government support and policy tilt to solve the problem of insufficient funds and facilities.”</i>	Key Informant 5, 6, 7, 8, 11
Cultivation of Professional Talents	6	<i>“Raise public awareness and interest in webbed swimming through media campaigns and promotions to attract more people to participate in the sport”</i>	Key Informant 2, 9, 10
		<i>“By highlighting the inclusivity and dynamic nature of finswimming, we can attract a broader audience”</i>	Key Informant 1
		<i>“Potential areas for promotion include showcasing the athleticism and excitement of finswimming through media campaigns and event sponsorships.”</i>	Key Informant 3
		<i>“Highlight achievements of finswimmers to inspire and attract new participants.”</i>	Key Informant 4
		<i>“Strengthen the training of coaches and referees, improve the professional level, and promote the standardization and professional development of sports.”</i>	Key Informant 5, 6, 7, 8, 11
		<i>“Strengthen the training of web-based swimming coaches and referees, and improve the professional level.”</i>	Key Informant 8
Total Recurrences	18		

The theme education system is one of the potential areas for promotion and addressing misconceptions about fin swimming as mentioned by key informants 6, 7, 8, and 11, *“Promote web swimming courses in primary and secondary schools to cultivate adolescent interests and skills. carry out web swimming experience and training activities in the community to expand the participation group”* along with other participants. Develop swimming programs that cater to diverse age groups, skill levels, and abilities is necessary and partnering with local schools, community centers, and aquatic facilities can provide accessible swimming lessons and promote the benefits of fin swimming for overall health and wellbeing. Offering certification programs for coaches and instructors to ensure they are equipped to teach swimming effectively and safely. Support grassroots initiatives that promote swimming and water safety, such as school programs, community events, and local competitions.

The theme stakeholder involvement exhibits statements from the participants such as *“Cooperate with enterprises to carry out sponsorship and promotion activities, and increase resource input. Seek more*

government support and policy tilt to solve the problem of insufficient funds and facilities” by key informants 5, 6, 7, 8, and 11. Collaborate with national swimming federations to develop and implement swimming programs that align with local needs and priorities. Engage with coaches and instructors to provide them with resources and support to improve their teaching methods and promote swimming as a lifelong activity. Work with government agencies and policy makers to develop and implement policies that support fin swimming and water safety initiatives. Offer scholarships to talented swimmers and divers to support their training and development, as well as to promote the sport globally.

The theme cultivation of professional talent is coined through statements of key informant 5, 6, 7, 8, and 11, “Strengthen the training of coaches and referees, improve the professional level, and promote the standardization and professional development of sports” and other participants’ views. Provide training and certification programs for swimmers, coaches and officials to ensure they are equipped to support the growth and development of swimming. Establish mentorship programs that connect experienced coaches and athletes with younger or less experienced ones as well as in the grassroots, fostering a culture of knowledge sharing and collaboration to showcase the sport and provide opportunities for athletes to compete at the highest level.

IV. Conclusions

The following are the conclusions derived from the results of the study;

1. Tracking metrics and adjusting strategies can help uplift competition edge of fin swimmers through competitive analysis and performance evaluation.

Technical proficiency executions, timing and speed are the primary measures of a swimmer's performance, which are determined by how quickly they complete a given distance. Consistently, achieving strong performance metrics is based on performance data, including competition results, training results, and technical evaluations. Additionally, an athlete's demographic characteristics, driven interests, physiological, psychological state and ability to manage stress during training and competition are important factors in evaluating their performance. The current competitive landscapes and strengths of fin swimmers needs high-level training system, experienced coaches, government support and continuous updated information form international competitions will support fin swimmers towards reputation for discipline and consistency.

2. Challenges that impact the training methods and performance outcomes of athletes includes limited training resources, shortage of qualified athletes, difficulty in handling time management, low public awareness, and lack of international communication updates.

3. Mental preparation and psychological resilience play in overcoming these challenges in fin swimming leading to optimizing performance evaluation. These preparations include developing strong mindset, recovery, and enhancing confidence. Necessity to improve ability to work under pressure, mindfulness, visualization help manage stress and maintaining a positive attitude to become more focused and efficient during trainings and competitions. However, investment for infrastructure and other resources, policy support, promotional activities and professional development are current initiatives and strategies of the Chinese government towards mental preparation and psychological resilience of fin swimmers so that they will be able to adjust to the challenges of the sport. In addition, areas that needs to be enhanced includes psychological counselling, education and training, family and other stakeholder support.

4. Strategies are needed to enhance the field development and public recognition of fin swimming as a competitive sport. Suggestions include enhancement of training program, cultivation of grassroots talent, use of technology, strengthen publicity and improve events quality including competitions.

V. Future Directions

1. The use of tracking metrics and adjusting strategy. Determine the metrics best fit for competition performance, such as race times and finishing positions. Use of data visualization tools by utilizing charts, graphs, and dashboards to analyze performance data and identify trends and patterns. Stay ahead of the competition by continuously monitoring performance and adjust strategy to gain competitive edge and implementing tactics to achieve that edge. Regularly achieve strong performance metrics and adjust to different race conditions

2. Develop and execute a well-thought-out training plan and competition strategies involving the tactical arrangement and execution of athletes which ensures fin swimmers are well-prepared and positioned to achieve strong performance metrics despite challenges on limited training resources, shortage of qualified athletes, difficulty in handling time management, low public awareness, and lack of international communication updates. Create training plan including acquiring qualified coaches and time management of schedules that will not affect academic. Get updates on internation competitions to be able to know the needed criteria and standards.

3. Maintain a strong physiological and psychological state to develop the ability to cope with stress in competition. Performance evaluation includes time to complete the race which means the time it takes for athletes to complete the race which is the most direct evaluation criterion for competition performance. This metric in the training plan should provide a clear and objective measure of their performance.

4. Enhancement of training program, cultivation of grassroots talent, use of technology, strengthen publicity and improve events quality including competitions are strategies needed to answer the challenges of fin swimming as a sport and discipline. With these strategies, the researcher designed a theory as follows;

The Unified Approach to Fin Swimming Recognition and Advancement Theory has been established based on the gathered data, coined theme and coding of the results of the study. This also includes the phases for the implementation plan. It is imperative that assessment of the overall needs and demands of the fin swimming sport leading to a well-thought-out training plan and competition strategies. Such training program will cultivate and prepare competition ready fin swimmers. However, improvement on facilities, use of technology, publicity and quality of events shall support the training program.

VI. PROPOSED FIN SWIMMING PROMOTION AND DEVELOPMENT INITIATIVE

Rationale:

Fin swimming, a unique and exciting aquatic sport, has not yet reached its full potential in terms of public recognition and participation. Despite its dynamic nature and the physical benefits, it offers, fin swimming remains underrepresented in the competitive sports arena. To enhance its development and public recognition, a comprehensive program is essential. This initiative aims to raise awareness, increase participation, and establish a strong competitive framework for fin swimming, thereby fostering its growth as a mainstream sport.

General Objective:

To enhance the development and public recognition of fin swimming as a competitive sport through targeted promotion, structured development programs, and increased competitive opportunities.

Specific Objectives:

1. To increase public awareness and interest in fin swimming.
 - Develop and implement an awareness campaign utilizing social media, local news outlets, and partnerships with schools and community organizations.
 - Organize demonstration events and open days at local swimming pools and sports centers.
 - Create engaging online content, including instructional videos and athlete testimonials, to showcase the sport's appeal and benefits.

2. To attract new participants, particularly young athletes, to fin swimming.
 - Launch a youth outreach program in collaboration with schools, focusing on introducing fin swimming in physical education classes and after-school programs.
 - Provide scholarships or grants for young athletes to join fin swimming clubs and attend training camps.
 - Partner with youth sports organizations to integrate fin swimming into their activities and competitions.

3. To establish a structured pathway for athletes to progress from beginner to elite levels.
 - Develop a coaching certification program to ensure high-quality instruction and support for athletes at all levels.
 - Create a tiered competition series, including local, regional, and championships, to provide regular competitive opportunities.
 - Implement a talent identification and development program to nurture promising athletes and provide them with specialized training and resources.

PROPOSED POLICY/ PROGRAM	OBJECTIVES	ACTIVITIES	PERSON/ ORGANIZATION INVOLVED & RESPONSIBLE	EXPECTED OUTCOME	MONITORING AND EVALUATION	ESTIMATED BUDGET	TIME FRAME
Fin Swimming Awareness Campaign	1. Increase public awareness and interest in fin swimming. 2. Attract new participants, particularly young athletes, to the sport. 3. Establish fin	Organize a fin swimming week with events, demonstrations, and free trial sessions.	Swimming federations, local sports clubs, and schools. Coordinated by the Sports Council.	Higher public visibility and increased participation rates in fin swimming programs	Track attendance at events and trial sessions, survey participants about their interest and experience, and analyze registration	50,000-200,000 yuan	First Quarter of the School Year

	swimming as a recognized and respected competitive sport.				numbers for fin swimming programs before and after the campaign.		
Competitive Fin Swimming Development Program	1. Develop a structured pathway for athletes to progress from beginner to elite levels. 2. Enhance the skills and performance of fin swimmers. 3. Increase the number of competitive fin swimming events.	Create and implement a competition series for fin swimming, including local, regional, and championships.	Swimming federations, regional sports councils, and fin swimming coaches. Overseen by the Sports Council.	More competitive opportunities for fin swimmers and an improved standard of competition.	Record the number of events held, participant numbers, and performance metrics at each competition. Gather feedback from athletes and coaches about the program's effectiveness.	50,000-200,000 yuan	Last Quarter of the School Year
Fin Swimming Education and Training Initiative	1. Train and certify a larger number of fin swimming coaches. 2. Incorporate fin swimming into school sports curricula. 3. Provide ongoing professional development for coaches and officials.	Conduct certification courses and workshops for coaches and physical education teachers.	Coaching certification bodies, local education authorities, and experienced fin swimming coaches. Coordinated by the Sports Council.	An increased number of qualified coaches and a stronger presence of fin swimming in schools.	Track the number of certifications awarded, evaluate the quality of training through participant feedback, and monitor the integration of fin swimming into school sports programs.	50,000-200,000 yuan	Third Quarter of the School Year

REFERENCES

- [1]. Apuke, O. (2017). Quantitative research methods: A synopsis approach, *Arabian Journal of Business and Management Review: Kuwait Chapter*, 6(10), 40-47
- [2]. Castro, F. A., Correia, R., Fiori, J. M., Giuliano, A. F., Trindade, C. D. Z., and Feitosa, W. G. (2021). Practical application of the simplified model to assess the arm stroke efficiency: A tool for swimming coaches. *Int. J. Perform. Anal. Sport* 21, 900-908. doi:10.1080/24748668.2021.1957295
- [3]. Chen, J., et al. (2021). Research on the innovation of underwater kicking technology in fin swimming. *Journal of Beijing Sport University*, 44(3), 52-57.
- [4]. Chen, L. (2023). The Development Situation and Path Selection of Wushu Sanda in the Mass population under the background of sports power (Master's Thesis). Wuhan University of Sport.
- [5]. Chetty, P. (2016). Importance of Ethical Considerations in Research. <https://www.projectguru.in/importance-ethical-considerations-research/>
- [6]. Chua, L. K., Dimapilis, M. K., Iwatsuki, T., Abdollahipour, R., Lewthwaite, R., & Wulf, G. (2019). Practice variability promotes an external focus of attention and enhances motor skill learning. *Human Movement Science*, 64, 307-319. <https://doi.org/10.1016/j.humov.2019.02.015>
- [7]. De Matos, et. al., (2023). Effects of paddles and fins on front crawl kinematics, arm stroke efficiency, coordination, and estimated energy cost. *Front. Physiol.*, 22 May 2023 Sec. Exercise Physiology Volume 14 - 2023 | <https://doi.org/10.3389/fphys.2023.1174090>
- [8]. Form (2022), *Swimming With Fins: Workouts to Help You Get Faster and Stronger*, <https://www.formswim.com/blogs/all/swimming-with-fins-workouts>
- [9]. González, P. P., & Sedlacek, J. (2020). Exclusive practice of crawl versus practicing the four swimming strokes on the improvement of crawl technique. *Retos*, 40, 250-256. <https://doi.org/10.47197/RETOS.V11I40.76840>
- [10]. Leroy, O. (2023). Ten Benefits of Swimming with Fins. <https://swimswam.com/swimming-with-fins/>
- [11]. Li, H., & Wang, X. (2022). Analysis of technical characteristics and influencing factors of competitive fin swimming. *Journal of Swimming Science*, 36(2), 31-35.
- [12]. Li, H., et al. (2020). A study on the development of a psychological evaluation system for fin swimming athletes. *Journal of Psychology and Sport*, 21(4), 78-83.
- [13]. Li, X., & Liu, Y. (2020). Research on the development and application of fins in competitive fin swimming. *Journal of Sports Equipment Technology*, 23(2), 32-36.
- [14]. Li, X., & Wang, Y. (2022). The application of mental preparation strategies in competitive fin swimming. *Journal of Psychology and Sport*, 23(3), 61-66.

- [15]. Lin, H., et al. (2021). Influence of Imagery Training on Adjusting the Pressure of Fin Swimmers, Improving Sports Performance and Stabilizing Psychological Quality. *Int J Environ Res Public Health*. 2021 Nov; 18(22): 11767. doi:10.3390/ijerph182211767
- [16]. Liu, Y., et al. (2022). Analysis of the influencing factors of psychological resilience in competitive fin swimmers. *Journal of Sports Psychology*, 23(1), 32-37.
- [17]. Liu, Y., et al. (2022). Research on the recovery methods of fin swimming athletes after high-intensity training. *Journal of Sports Medicine*, 42(5), 621-626.
- [18]. Liu, Y., et al. (2023). Analysis of the energy metabolism characteristics of fin swimming athletes during different training intensities. *Journal of Shanghai Institute of Physical Education*, 27(1), 18-23.
- [19]. Lord, C. (2021). Why Qingdao Trials Raise Questions About The Development Of Chinese Swimming Talent. <https://www.stateofswimming.com/>
- [20]. Marion, Koch & Guillaume, Gouvenet & Chavet, Pascale & Barla, Charlie & Sabo, Anton. (2023). Muscle activity during fin swimming. *Procedia Engineering*. 2. 10.1016/j.proeng.2010.04.106.
- [21]. Rai, N. and Thapa, B. (2019). A study on purposive sampling method in research, *Academia*, 1-12.
- [22]. Reichmuth, D., et al. (2021). Key Performance Indicators Related to Strength, Endurance, Flexibility, Anthropometrics, and Swimming Performance for Competitive Aquatic Lifesaving. *Int J Environ Res Public Health*. 2021 Apr; 18(7): 3454. doi: 10.3390/ijerph18073454
- [23]. Sellés-Pérez, S., Arévalo, H., Altavilla, C., Guerrero, D. J., & Cejuela, R. (2023). Effect of training with fins on swimming performance in kids and young recreational swimmers. *Journal of Physical Education and Sport (JPES)*, 23(2), 532-537. DOI:10.7752/jpes.2023.02066
- [24]. Sun, P., et al. (2020). Analysis of the psychological pressure of fin swimming athletes and its adjustment strategies. *Journal of Sports Science and Technology*, 40(6), 82-86.
- [25]. Sun, P., et al. (2020). Research on the application of mental imagery in pre-competition preparation of fin swimming athletes. *Journal of Beijing Sport University*, 43(6), 71-76.
- [26]. Tie, Y. C., et al., (2019). Grounded theory research: A design framework for novice researchers. *SAGE Open Med*. 2019; 7: 2050312118822927. Published online 2019 Jan 2. doi: 10.1177/2050312118822927
- [27]. Tomaszewski, L. E., et al. (2020). Planning Qualitative Research: Design and Decision Making for New Researchers. *International Journal of Qualitative Method* Retrieved from <https://journals.sagepub.com/doi/full/10.1177/1609406920967174>
- [28]. Umpsa (2021). *Finswimming: A Contemporary Water Sport to Discover in Malaysia*. <https://news.umpsa.edu.my/experts/finswimming-contemporary-water-sport-discover-malaysia>
- [29]. Wang, H., et al. (2021). Analysis of the nutritional needs of fin swimming athletes and formulation of scientific dietary strategies. *Journal of Food and Nutrition Research*, 40(3), 412-417.
- [30]. Wang, L., et al. (2019). Exploration on the application of psychological evaluation in optimizing training programs for fin swimming athletes. *Journal of Sports Science and Technology*, 39(4), 121-126.
- [31]. Wang, L., et al. (2020). The physiological characteristics and influencing factors of high-level finswimmers. *China Sport Science*, 40(2), 51-55.
- [32]. Wang, Y., et al. (2019). Exploration on the scientific periodization of training for competitive fin swimming. *Journal of Swimming Science*, 33(6), 41-45.
- [33]. Wang, Y., et al. (2023). The relationship between psychological resilience and competitive performance of fin swimming athletes. *Journal of Swimming Science*, 37(4), 18-23.
- [34]. Xu, J., & Li, X. (2021). The relationship between mental health and competitive performance of fin swimming athletes. *Journal of Sports Medicine*, 41(2), 217-222.
- [35]. Xu, J., & Li, X. (2022). Research on the optimization of fin swimming training programs for high-level athletes. *Journal of Beijing Sport University*, 45(1), 78-83.
- [36]. Xu, J., et al. (2019). Exploration on the application of interdisciplinary collaboration in scientific training for fin swimming. *Journal of Sports Science and Technology*, 39(1), 87-92.
- [37]. Zhang, J., et al. (2020). Biomechanical analysis of underwater kicking technology in fin swimming. *Journal of Biomechanics*, 33(4), 71-76.
- [38]. Zhang, J., et al. (2021). Mental training program for improving competitive anxiety in fin swimmers. *Journal of Sports Science and Technology*, 41(2), 37-42.
- [39]. Zhang, J., et al. (2021). The psychological characteristics and influencing factors of competitive fin swimmers. *Journal of Psychology and Sport*, 22(2), 48-52.
- [40]. Zhang, J., et al. (2023). The application of sport psychology intervention in improving the psychological quality of fin swimming athletes. *Journal of Sports Medicine*, 43(1), 102-107.
- [41]. Zhao, Y., & Liu, X. (2020). Analysis of the psychological pressure of fin swimming athletes and coping strategies. *Journal of Swimming Science*, 34(1), 28-33.
- [42]. Zhao, Y., & Liu, X. (2023). A study on the specific training methods of fin swimming based on different competition distances. *Journal of Swimming Science*, 37(1), 22-27.