

RESEARCH ON SPORTS INJURY PREVENTION AND REGIONAL SPORTS FITNESS

PESQUISA SOBRE PREVENÇÃO DE LESÕES ESPORTIVAS E APTIDÃO ESPORTIVA REGIONAL

INVESTIGACIÓN SOBRE LA PREVENCIÓN DE LESIONES DEPORTIVAS Y APTITUD DEPORTIVA REGIONAL



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ABSTRACT

Introduction: Many athletes suffer sports injuries during exercise and are susceptible to sequelae due to a variety of post-injury complications that occur in the process of sports activities. Preventing these injuries in physical training, impacts positively on the athletes' physique. **Objective:** Study the sports habit and regional physical fitness, exploring the prevention strategies in the main sports injuries. **Methods:** This paper elaborates targeted questionnaires (n=568) including proportion of gender, fitness, exercise frequency, duration and intensity of current regional fitness, as well as athletes' motivations in a Chinese city. **Results:** Current urban residents' enthusiasm for fitness is high, however due to lack of conditions, athletes tend to choose some sports with lower complexity (circuits, 65.06%; running, 48.84%; walking, 40.46%). Most of the injuries caused by these types of sports are skin abrasions. The severity of these injuries is not high. **Conclusion:** Providing effective exercise guidance to its practitioners can improve their sports cognition, build a foundation for the professional sports system, and provide relevant knowledge about emergency treatments. **Level of evidence II; Therapeutic studies - investigation of treatment results.**

Keywords: Sports Injuries; Preventive Medicine; Physical Fitness.

RESUMO

Introdução: Muitos atletas sofrem lesões esportivas durante o exercício e estão propensos a sequelas por uma variedade de complicações do pós-acidente que ocorre no processo das atividades esportivas. Prevenir essas lesões no treinamento físico, impacta positivamente no físico dos atletas. **Objetivo:** Estudar o hábito esportivo e a aptidão física regional, explorando as estratégias de prevenção nas principais lesões esportivas. **Métodos:** Este artigo elabora questionários direcionados (n=568) incluindo proporção de gênero, aptidão, frequência, duração e intensidade do exercício da aptidão regional atual, bem como as motivações dos atletas em uma cidade chinesa. **Resultados:** O entusiasmo dos atuais moradores urbanos pela aptidão física é alto, porém devido à falta de condições, os atletas tendem a optar por alguns esportes com menor complexidade (circuitos, 65,06%; corrida, 48,84%; caminhada, 40,46%). A maioria das lesões causadas por esse tipo de esportes são abrasões de pele. A gravidade dessas lesões não é alta. **Conclusão:** Fornecer a orientação efetiva dos exercícios para seus praticantes pode melhorar sua cognição esportiva, construir uma base para o sistema esportivo profissional e proporcionar conhecimentos relevantes sobre os tratamentos emergenciais. **Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.**

Descritores: Lesões Esportivas; Medicina Preventiva; Aptidão Física.

RESUMEN

Introducción: Muchos atletas sufren lesiones deportivas durante el ejercicio y son propensos a sufrir secuelas debido a una variedad de complicaciones posteriores a la lesión que se producen en el proceso de las actividades deportivas. Prevenir estas lesiones en el entrenamiento físico, repercute positivamente en el físico de los deportistas. **Objetivo:** Estudiar el hábito deportivo y la aptitud física regional, explorando las estrategias de prevención en las principales lesiones deportivas. **Métodos:** Este trabajo elabora cuestionarios específicos (n=568) que incluyen la proporción de género, la condición física, la frecuencia de ejercicio, la duración y la intensidad de la condición física regional actual, así como las motivaciones de los deportistas en una ciudad china. **Resultados:** El entusiasmo de los residentes urbanos actuales por la aptitud física es alto, sin embargo, debido a la falta de condiciones, los atletas tienden a elegir algunos deportes de menor complejidad (circuitos, 65,06%; correr, 48,84%; caminar, 40,46%). La mayoría de las lesiones causadas por este tipo de deportes son abrasiones de la piel. La gravedad de estas lesiones no es elevada. **Conclusión:** Proporcionar una orientación eficaz sobre el ejercicio a sus practicantes puede mejorar su cognición deportiva, construir una base para el sistema deportivo profesional y proporcionar conocimientos relevantes sobre los tratamientos de emergencia. **Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.**

Descriptor: Lesiones Deportivas; Medicina Preventiva; Aptitud Física.



INTRODUCTION

The outline of the national fitness program issued by the State Council has greatly promoted the rapid development of Chinese people's sports activities, and achieved remarkable results. Whether office workers or retired old people, they will take some time out of their work and life to carry out sports with their favorite sports methods, which can not only obtain the fun of sports, but also significantly improve their physique and resistance.¹ National fitness activity is one of the most direct and realistic interests that people care about most. It is related to the healthy development of people's body and the quality of spiritual and cultural life.² However, in the current national fitness, due to the lack of necessary guidance, many athletes can only exercise through network image data or according to their own understanding, without reasonable selection of sports items and scientific sports methods suitable for themselves, or due to their low physical quality, they have sports injuries in the process of sports. Similarly, because some sports injuries do not affect daily life, the injured have no awareness of going to the hospital for treatment, which can easily lead to more serious injuries or sequelae, affecting their normal life in the future.³

Sports injury is a variety of injuries and post-accident complications that occur in the process of sports activities. It is closely related to human participation in projects, technical characteristics and physical quality, and is different from accidental injuries in daily life and work.⁴ In popular sports training, sports injuries have different forms and degrees. Generally speaking, sports injuries can be avoided if effective preventive measures are taken in conjunction with mass sports training. It can be seen that preventing sports injury is an important step for athletes participating in mass sports training to reduce injury. In order to improve the physique of athletes, how to effectively carry out physical training while avoiding sports injury and improve the training effect has become our main research goal.⁵ In order to solve this problem, this paper analyzes the current situation of national sports fitness in a city by means of questionnaire, discusses the time, causes and situation of sports injury, so as to have a deeper understanding of sports injury in the process of national sports, and puts forward corresponding preventive measures in combination with the current sports situation and theoretical knowledge. So as to provide some guidance and guarantee for the public and national sports fitness.⁶

METHODS

In this paper, the author sorted out the theoretical information collected on the relevant information website, combined with the national fitness situation of the city obtained in the interview process, designed the relevant questionnaire, and determined the content of the questionnaire after communicating with experts. The basic contents of the questionnaire include the basic problems of current national fitness, such as gender ratio, exercise frequency, exercise duration and exercise intensity, as well as sports motivation, fitness methods and other problems related to sports injury. Finally, it integrates and counts the injury time, injury situation and injury causes of national sports fitness, so as to pave the way layer by layer and go deep layer by layer, so as to systematically analyze the research objectives.

The questionnaire is distributed and collected offline in the main stadiums, gyms, squares, parks and so on. The study and all the participants were reviewed and approved by Ethics Committee of Suzhou University of Science and Technology (NO. 2018SUST452). A total of 600 questionnaires were distributed and 568 questionnaires were recovered. Six invalid questionnaires were excluded from the integration of questionnaire collection results, and a total of 562 valid questionnaires were obtained. The relevant data were sorted out.

RESULTS

Analysis on the current situation of national physical fitness

(Figure 1) shows the frequency of national physical fitness exercise. As many respondents are office workers, their time may change due to many factors, so the design options are uncertain, 1 ~ 2 times, 3 ~ 5 times and more than 6 times. The survey results show that the number of people who choose uncertainty is the largest, reaching 37.90%; Among the people with a fixed fitness frequency, the proportion of 3-5 times is the highest, accounting for 31.67%. Another 11.92% of the athletes said they exercised 1-2 times a week, and 18.51% chose to exercise more than 6 times a week. From the survey results of the corresponding population, people who work regularly or retire often exercise regularly, and the population of office workers is often uncertain or 3 ~ 5 times. Many office workers do not exercise very frequently every week due to work fatigue. People who exercise more than 6 times or 1 ~ 2 times a day are often elderly people who pursue health after retirement, which is also consistent with the current actual situation.

As shown in Figure 2, the duration of national physical fitness exercise is also set in the options, including uncertain duration, within 30 minutes, 30 ~ 60 minutes and more than 60 minutes. It can also be seen from the survey results that the proportion of uncertain people is the highest, accounting for 40.21%. These people are often office workers. The daily exercise duration is determined according to their leisure time and energy state of the day. If the state is good, exercise for a long time. If the state is poor, exercise a small amount to achieve the effect of relaxation. It can be seen from the crowd with relatively fixed duration of fitness exercise that the proportion of people with more than 60 minutes' accounts for 23.67%. The fitness methods chosen by this part of the crowd are often more soothing and belong to aerobic fitness. People within 30 ~ 60 minutes accounted for 20.64%, and these people chose relatively fierce sports. Another 15.48% of the population chose the exercise mode within 30 minutes. The reasons include two parts. One is to choose the more intense exercise mode, so they will feel tired in 30 minutes. The other is to realize the importance of exercise health, but due to the lack of perseverance, they can only adhere to a short time to obtain psychological "comfort".

Analysis of national sports fitness mode and sports motivation

The second part of the research is to analyze the national sports fitness methods and sports motivation, so as to have a better understanding of the sports psychology of urban residents. The specific research is as follows:

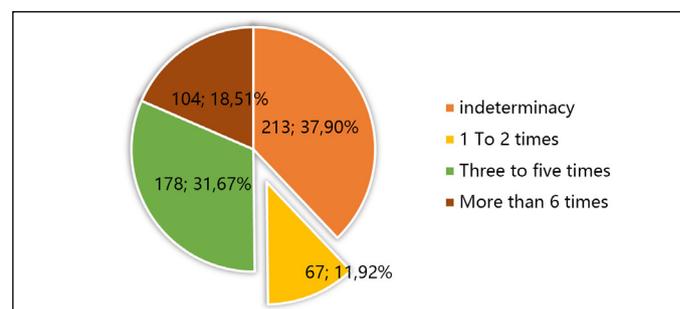


Figure 1. National physical fitness exercise frequency (n = 562).

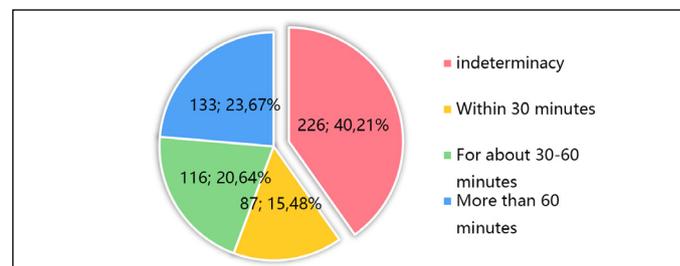


Figure 2. Duration of national physical fitness exercise (n = 562).

(Figure 3) shows the sports motivation of national physical fitness. It can be seen from the research results that the current national sports fitness motivation is divided into four steps according to the steps. The first step is "strengthening the body", and the score is very high, which shows that the most important sports fitness motivation of most people is to give themselves good physical conditions through exercise, this also proves the popularity of the goal of improving national physique and national fitness among people. The second echelon is "leisure decompression" and "fat reduction and shaping", which is people's new needs for themselves after meeting their basic needs in daily life, whether they are the elderly who are relatively boring in their spare time life or the people who need their own appearance, good shaping effect can be achieved through national fitness and leisure. The third stage is "enrich life" and "expand the scope of communication", both of which belong to social needs. Through sports, you can get like-minded friends and meet for sports, which is also a way to expand the scope of communication and have fun in daily life. The last step is "improving sports ability", which is a low score, which is considered by many people to be less important. This is also related to the current situation of national fitness of amateur sports enthusiasts. Compared with professional athletes, these amateurs often pay more attention to the demands of life on themselves, rather than improving sports ability and enhancing competitive performance.

As shown in Figure 4, the selection of national sports fitness mode is shown. This is a multi-topic, as long as the respondents have participated in this aspect of fitness, they can choose. From the research results, it can be seen that the three higher ranking exercises, running and hiking are all sports that have less restrictions on the venue and can be carried out without certain equipment and professional sports ability, which is also closely related to the amateur nature of the current national fitness. These sports have high safety and do not need too professional guidance, so they are also one of the necessary sports for fitness lovers and beginners. The second ladder is martial arts and fitness equipment, which account for about 30%. These two sports methods have certain professional or equipment requirements, but generally speaking, they are relatively simple and easy to use, so they are also the choice of many

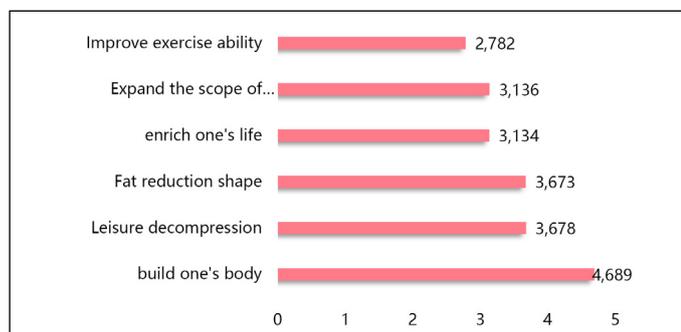


Figure 3. National sports fitness motivation.

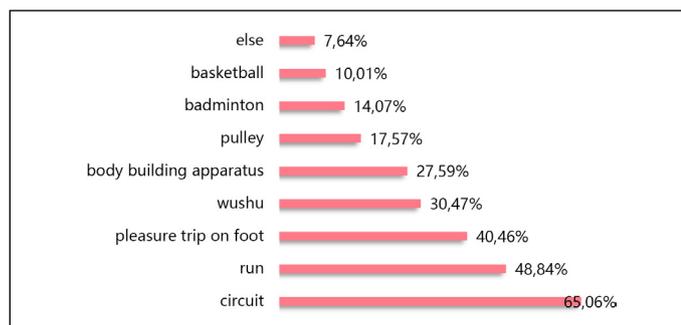


Figure 4. Selection of national sports fitness mode.

athletes. Finally, there are roller skating, badminton, basketball and other sports that have certain sports skills and need to buy professional equipment. They have a lot of interest, but they also need a period of study, so relatively few people choose.

National fitness sports injuries

The third aspect of research is the sports injury of national sports fitness. From the previous two parts of research, it can be seen that national sports fitness often does not choose some items with high difficulty or intensity due to its amateur nature, and its sports injury is also different from that of professional athletes.

As shown in Figure 5, the injury of national sports fitness is shown. It can be seen from the figure that the proportion of abrasion is the highest, accounting for 33.87%, followed by joint injury accounting for 22.58%, sprain accounting for 20.97% and strain accounting for 13.71%. These injuries are relatively minor injuries. As long as timely treatment is carried out, there are fewer sequelae and will not affect daily life. Only 1.61% of the athletes have fractures, which are serious injuries. However, due to the low exercise intensity and difficulty of the athletes, such serious injuries are rare. On the whole, the injuries caused by amateur sports with low intensity and low professionalism, such as national fitness, are mostly skin injuries, the severity is not high, and the proportion of sprains, strains and joint injuries is high, which shows that non-standard sports actions have certain damage to human muscle tissues and joints, Therefore, it is necessary to give some guidance to non-standard athletes, so as to avoid the adverse effects of wrong training methods on the body.

(Figure 6) shows the cause statistics of national fitness injury. It can be seen from the research that unprofessional is the main cause of sports injury in national sports fitness. Whether it is "insufficient preparation activities" or "technical action errors", it will bring certain injury to the athletes, and the lack of attention of the athletes themselves is also one of the main causes of injury. Because they do not pay enough attention to it, they lack the awareness of protection, Lack of protective equipment during exercise, and inattention is easy to occur in the process of exercise, which will bring sports injury to athletes. Therefore, in the analysis of preventive measures, we should put forward corresponding solutions according to these aspects, so as to provide effective help for comprehensive sports fitness lovers.

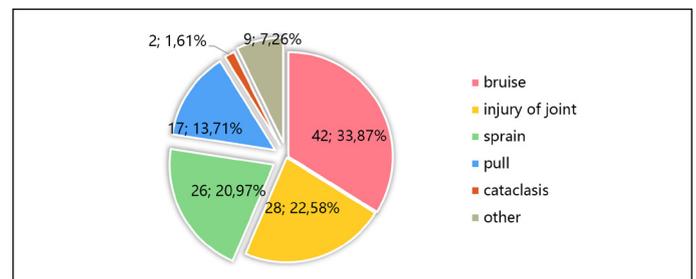


Figure 5. Analysis of injuries in national sports fitness.

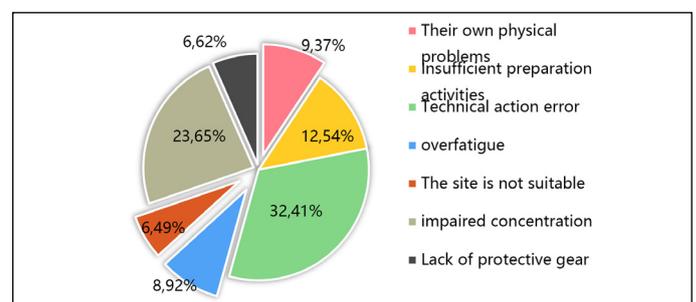


Figure 6. Statistics of injury causes of national fitness.

DISCUSSION

The key to prevent sports injury of athletes is that managers need to effectively guide athletes to exercise reasonably. Therefore, in national sports training, athletes with high professional quality should be selected as coaches. Coaches should reasonably manage national sports training activities, and must have specific professional knowledge, common sense, professional prevention knowledge and health care knowledge, so as to guide athletes to exercise reasonably. In the context of national fitness, coaches need to improve the athletes' understanding of sports injury in the process of fitness, reverse the injury phenomenon caused by Blind Sports in the past, strengthen the physical quality of mass athletes, enable them to exercise and try reasonably, and prevent sports injury. Coaches need to actively monitor their emotions in the training process. Only athletes with positive thoughts and emotions can effectively participate in sports training. The emotional state of mass athletes is often weaker than that of professional athletes. Once they have negative emotions, they can't adapt to the training rhythm as quickly as professional athletes. In this case, the coach needs to actively guide them and teach them some self-regulation skills so that they can control their emotions.⁷

Sports equipment or venues must meet the requirements of fitness training. The runway should be high and low and flat and should not be too hard. The bunker should be free of sundries. The connection between sponge pads should be tight and thick enough. If the above conditions are not met or the site is too slippery, sports injury will be caused. Sports facilities in some areas are old and sports equipment is

untidy. Some discus, shot put, javelin and other dangerous equipment are placed on the training ground at will after training, which will also cause injury to athletes. Therefore, site managers and coaches must ensure the safety performance of sports venues and sports equipment. In daily training, check whether there is any situation that affects the training of athletes, and solve it in time.

CONCLUSION

Through the research of this paper, we can see that national fitness has achieved good development in the current city, and also cultivated residents' good sports awareness, which is a state of benign development. However, because residents do not have a comprehensive understanding of sports, they lack a lot of necessary theoretical knowledge and technical guidance, and often can only exercise through their own understanding and cognition. The wrong way of fitness will bring sports injury to athletes and cannot achieve good fitness effect. Therefore, relevant departments and relevant social institutions should provide effective sports guidance to athletes, so as to improve their sports cognition, build a professional sports system, and teach relevant emergency treatment knowledge, so as to reduce the occurrence of sports injury as much as possible, and timely rescue the sports injury to prevent more serious consequences caused by improper rescue or rescue time. Only by preventing sports injuries can we improve the sports effect of national fitness and improve national physique.

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AUTHORS' CONTRIBUTIONS: The author made significant individual contributions to this manuscript. WH: writing, performing surgeries, data analysis, article review, and intellectual concept of the article.

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