New media's influence on college students' sports injury prevention and treatment skills

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Abstract: Based on the survey of the basic situation and causes of sports injuries among college students, a prevention and treatment plan for sports injuries was formulated in conjunction with new media intervention methods. The study found that: after three months of intervention experiments conducted through three terminals of the internet platform and two concentrated online classes, there was a certain degree of improvement in college students' ability to prevent and treat sports injuries.

Keywords: New Media; Sports Injuries; Prevention and Treatment Capability; Intervention; Feasibility

1. Introduction

In college physical education and extracurricular sports activities, students have a wide range of participation and are involved in many sports, making sports injuries relatively common. This not only harms the physical health of college students but also affects their mental health [1]. College students, as a special research group, have characteristics such as being young, energetic, having many opportunities to participate in sports, having a large and intense sports load, and having a poor awareness of sports injury protection [2].

The deep integration of the Internet with the industry has promoted the innovation of new types of media and communication methods. New media, which combines computer networks and multimedia technology, has broken through the traditional teaching time and space, expanded the scale of teaching, and can adapt to various schools, levels, and forms of education. It can also promote the socialization, popularization, and lifelong education through online education and distance education [3]. Therefore, actively responding to the national strategy of "Internet Plus" and intervening in the prevention and treatment of college students' sports injuries through the three terminals of new media to explore the feasibility of the intervention plan is of great significance for the health promotion of college students.

2. Research subjects and methods

2.1. Research subjects

The research subjects are college students. A total of 2,088 first-year students from a certain college who are not majoring in physical education were selected. After the second phase of screening, 410 test subjects from six majors with higher injury rates were determined, and 40 were randomly selected as the sample for the third phase.

2.2. Research methods

2.2.1. Survey method

Referring to the questionnaire in An Cuicui's "Physical Exercise of College Students in Dalian" [4], and the relevant content in "Musculoskeletal Rehabilitation" [5] compiled by Ma Chao, and "Sports Rehabilitation" [6] edited by Yao Hong'en, two surveys were designed: "College Student Sports Injury Survey" and "Sports Injury Knowledge Survey". After being revised and improved by three experts, and

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subjected to expert validity testing. The "College Student Sports Injury Survey" is the first survey questionnaire, with a total of 33 questions; the "Sports Injury Knowledge Survey" is the second and third survey questionnaire, with a total of 18 questions. The distribution of the questionnaire is shown in Table 1.

Table 1: Survey Questionnaire Recovery Rate and Validity

Times	Distributed Copies (copies)	Returned Copies (copies)	Return Rate	Valid Copies (copies)
First time	2.088	1895	90.75%	1604
Second time	410	394	96.10%	335
Third time	40	38	95.00%	38

2.2.2. Experimental method

From the 1,604 valid questionnaires in the first phase, 410 college students were selected as the intervention subjects for the second phase. Among them, 40 intervention subjects were chosen to enter the third phase to establish the New Media Intervention Group (Group C). The remaining students were grouped by major into three traditional intervention groups (Groups A, B, D), and those who did not participate in the second and third phases became the Control Group (Group E). The experimental design is shown in Table 2.

Table 2: Experimental Grouping and Content Arrangement

Group	Number of People	Male	Female	Test Content
A	112	64	48	1. Distribution of sports injury knowledge popularization manuals; 2. Two classroom lectures conducted
B	89	55	34	1. Distribution of sports injury knowledge popularization manuals; 2. One classroom lecture conducted
C	40	14	26	1. Distribution of sports injury knowledge popularization manuals; 2. Two centralized interactive lectures through three new media platforms
D	169	83	86	Distribution of sports injury knowledge popularization manuals
E	1678	620	1058	Blank

The new media intervention experimental method is mainly divided into three steps, using the three different online terminals of the forum, Weibo, and QQ group to conduct remote education on cognition and behavior for college students. First, a post is started in the campus forum to announce related content and live broadcast the implementation process of another experimental group. A QQ group for online classes is established to announce class schedules and solicit opinions on class content. Finally, the entire experiment is promoted and recorded using the form of live broadcasting and discussion on Weibo, and data on the number of participants and the activity's heat are counted. All three terminals work simultaneously to assist each other, ensuring timeliness and spatial-temporal availability during the two concentrated teaching periods over three months.

2.2.3. Mathematical statistics method

The data obtained from the survey were organized and analyzed using the Excel 2010 software and tested and analyzed with SPSS 17.0.

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3. Research results and analysis

3.1. Current status of college students' sports injuries and activity participation

The survey found that the rate of sports injuries among college students is as high as 41%. The most frequent type of injury is abrasion (41.59%), followed by sprain (31%). This result is consistent with the research of most domestic scholars. Song Jun and others pointed out that the incidence of students' sports injuries during amateur exercise is 40.90% [7], while Yuan Chuan Ming' s injury rate of 77.72% differs significantly from the results of this study [8]. Tables 3 and 4 show that 62% of college students exercise less than twice a week, and the high proportion of only one physical education class per week is worrying.

Table 3: Weekly Frequency of Physical Education Classes

Sections	Number of People	Percentage
None	56	3.50%
Once	1205	75.32%
Two to three times	338	21.18%

Table 4: Weekly Frequency of Extracurricular Sports Activities

Exercise Frequency	Number of People	Percentage
Once or less	390	24.54%
Twice	596	37.51%
Three to four times	382	24.04%
More than four times	221	13.91%

Among the college students surveyed, most only exercise at school, and some even only engage in physical activities during physical education classes. More than 97% of college students have a positive attitude in physical education classes, while about 15% of college students are prone to sports injuries due to a weak sense of self-protection. Hong Xiaoxiao pointed out in "A Survey and Research on the Current Status of College Students' Sports Lifestyle in the Internet Era" [9], that 28.77% of students have activity times of less than 30 minutes; 40.75% of students have activity times between 30 to 60 minutes; only 12.67% of students have exercise times between 60 to 90 minutes. This is basically consistent with the results of this survey, indicating that most college students exercise for more than half an hour, and the effectiveness of the exercise can be guaranteed to a certain extent.

3.2. College students' cognition and capability in sports Injury prevention

3.2.1. The employment status of college students' sports injuries

As shown in Table 5, 5.07% of the students are completely unaware, only 3.26% are very familiar with it, and the vast majority of college students (73.45%) have limited knowledge about sports injury prevention and treatment. Therefore, it is essential to popularize the concept of health and physical education and intensify the education efforts on sports injury prevention and treatment knowledge.

Table 5: College Students' Cognition of Sports Injuries

Level of Understanding	Number of People	Percentage
Very familiar	52	3.26%
Somewhat familiar	291	18.22%

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Less familiar	1173	73.45%
Not at all familiar	81	5.07%

3.2.2. College students' ability to handle sports injuries

In the survey questions such as "Do you stay alert during sports activities?" "Do you do enough preparatory activities?" "Do you wear appropriate clothing and shoes for the sport?" more than 70% of college students chose "Yes," but there are still a few who have not realized the protective role of these effective measures in their physical exercise.

In the option "Would you reduce exercise to avoid injury in physical education classes due to poor classroom organization and teaching methods?" the correct rate is only 61.57%. Table 6 shows that college students' ability to handle sports injuries is quite weak.

Table 6: College Students' Sports Injury Management Skills

Type of Injury	Total Correct Handling Rate	Type of Injury	Total Correct Handling Rate
Abrasion	3.03%	Sprain	4.00%
Contusion	6.25%	Strain	6.06%

3.3. Analysis of the effects of new media intervention

By surveying the after-school lifestyles of college students (Figure 1), it is understood that playing on the computer is the main lifestyle of contemporary college students, and the internet is one of the main means for college students to acquire knowledge. It can be seen that it is very necessary to use new media and the internet for intervention experiments on sports injuries among college students.

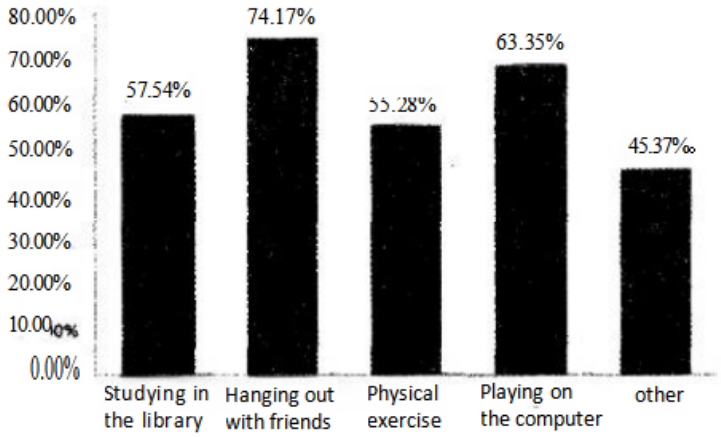

Figure 1: Lifestyles of College Students

3.3.1. Analysis of the feasibility of new media intervention

Today's college students mainly obtain information through media such as computers and smartphones, which also provides an important carrier for the promotion and dissemination of sports-related information.

This study counted the channels through which college students understand sports injury knowledge and their willingness to receive information sources in the first and second survey questionnaires, as shown in Tables 7 and 8, the proportion of the internet option has reached more than 45%. This result provides support for the implementation of this experiment.

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Table 7: Channels for Understanding Sports Injury Knowledge

Main Channel	Number of People	Percentage
Television	719	27.40%
Internet	764	29.10%
Books	455	17.30%
Other	687	26.20%

Table 8: Preferred Platforms for Popularizing Health and Physical Education Information

Preferred Learning Platform	Number of People	Percentage
Television	772	48.27%
Internet	827	51.73%

In the new media era, the use of the internet is not only conducive to improving the teaching model of physical education and health courses but also to the popularization of sports injury knowledge. According to statistics, the 42 articles related to sports injuries posted on Weibo have been read as many as 3,891 times, with a daily attention rate of 31.33%. The advantages of the new media era, such as the fast spread of information, wide dissemination range, high frequency of interaction, and unrestricted participation, are fully demonstrated.

3.3.2. New media and sports injury prevention

After the new media intervention, the ability to deal with sports injuries has significantly increased, especially the ability to handle contusions, which has improved by nearly 19 percentage points, as shown in Table 9.

Table 9: Comparison of Sports Injury Management Skills Before and After Intervention

	Pre-intervention	Post-intervention
Abrasion	3.03%	4.00%
Sprain	4.00%	4.00%
Contusion	6.25%	25.00%
Strain	6.06%	8.00%

3.3.3. Comparison of effects between intervention and control groups

The study shows that the intervention group has made certain improvements in mastering common knowledge and treatment methods for sports injuries, but the extent of improvement is small. The more diverse the methods used in the intervention plan, the less obvious the improvement effect is.

Table 10: Comparison of Paired T-Test Results for Intervention Effects Among Groups

Group	M±SD (Cognitive Differences in the Control Group)	t	P
1A-E	2.83±0.94	0.588	>0.05
2B-E	2.29±0.76	-7.419	<0.05
3C-E	1.93±0.65	-9.295	<0.05

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4D-E	2.00±0.66	-9.5	<0.05
5A-C	3.40±1.13	5.792	<0.05
6B-C	1.32±0.44	0.756	>0.05
7A-D	4.07±1.36	5.071	<0.05
8B-D	2.40±0.80	0.834	>0.05
9C-D	1.66±0.55	0.603	>0.05

This study's experimental subjects who received the intervention were all first-year college students. After entering school, they were at the same starting line, and the problems they faced were also common, so under the condition of controlling variables, the 410 subjects could be divided into groups by major to exclude pre-test differences. As shown in Table 10, Groups A, B, and C are traditional intervention groups, and their differences lie in different durations. Group C is the new media intervention group; Group E is the control group that did not go through the second and third stages. Table 1 shows that Group 1 with $P>0.05$ indicates that there is no significant difference between the A group with the most interventions and the control Group E before and after the intervention, but the results of the comparison with Groups 2, 3, and 4 all show that the implementation of each intervention method has a certain effect on improving awareness ($P<0.05$). After the intervention, the number of correct injury treatments increased, and the prevention and treatment capabilities of each group were improved.

Looking comprehensively at Groups 5, 7, and 9, in the comparison between the traditional teaching method of Group A and the new media intervention method of Group C, the effect of the traditional teaching method is more obvious and stable because traditional classroom teaching has the characteristics of security and wide audience reach. The comparative analysis between Group C and Group D in Group 9 shows no difference in the intervention effect ($P>0.05$). This is related to the inherent limitations of new media. Researchers believe that the inability to monitor and the dependence on proactive learning are two major factors affecting the intervention effect.

4. Conclusion

The conscious effort to prevent sports injuries is the main factor affecting the ability to prevent and treat sports injuries, which is mainly manifested in the weak prevention and treatment awareness of college students for sports injuries. The formation of subjective consciousness is a long-term accumulation, requiring the use of a good environment and good habits to slowly adjust the already inherent subjective consciousness. The efficiency of new media intervention methods is something that traditional media cannot achieve or surpass.

The target group can achieve free participation in time, autonomous choice of topics, instant communication across regions, and multi-directional interaction through different media platforms. Information can be continuously preserved and updated in real-time, making the timeliness, effectiveness, comprehensiveness, and transparency of information dissemination fully exerted.

The "dual personality" of the new media era. On the one hand, we understand that the internet has become the main way of life for more and more college students, forming a "network dependency," indulging in the network and ignoring reality; on the other hand, new media has changed many bad living habits of college students, and after understanding standardized physical education behavior, it has greatly improved the ability to prevent sports injuries.

New media intervention is feasible. Through providing a forum platform, establishing QQ group file and video uploads, and Weibo live broadcast and interactive discussions, the three network terminal intervention measures, the experiment has proven that new media intervention has indeed improved the current situation of college students' sports injuries, proving the feasibility of this intervention method. However, the impact of new media on behavioral changes cannot be monitored, and its effectiveness in promoting cognitive improvement and capability development still needs further verification.

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