

# APPLICATION OF PHYSICAL TRAINING IN CONJUNCTION WITH REHABILITATION IN MALE SOCCER INJURY

APLICAÇÃO DE TREINAMENTO FÍSICO EM CONJUNTO À REABILITAÇÃO DE LESÕES NO FUTEBOL MASCULINO

APLICACIÓN DE ENTRENAMIENTO FÍSICO JUNTO CON LA REHABILITACIÓN DE LESIONES EN EL FÚTBOL MASCULINO



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Huijie Ren<sup>1</sup>   
(Physical Education Professional)  
Dongbo Shi<sup>1</sup>   
(Physician)

1. Taiyuan University of Technology,  
College of Physical Education,  
Taiyuan, Shanxi, China.

## Correspondence:

Dongbo Shi  
Taiyuan, Shanxi, China. 030024.  
sdbtyut@126.com

## ABSTRACT

**Introduction:** Soccer is one of the sports with the highest incidence of injuries, generated both by the high performance required on the field and by physical conflicts between players. A fast rehabilitation is essential for the player's performance. It has been empirically observed that an early recovery in patients' rehabilitation is associated with physical training compared to players who received only the traditional rehabilitation. **Objective:** Verify the physical training influence on rehabilitation sports injuries in male soccer players. **Method:** 180 cases of male adolescents with sports injuries admitted to a Taiyuan hospital were selected. A division into two groups was randomly computerized to avoid statistical differences in the intensity of the injuries. The control group (14.3±2.45 years old) was treated with the standard protocol, while the experimental group (15.3±2.95 years old) received an intervention with physical training. Interviews and questionnaires were conducted involving analysis of time and severity of the injury, laterality, and location. The control group received treatment based on this information. The recovery rate and intervention satisfaction rate were collected. SPSS22.0 Statistical Software was used for student's t-test and chi-square test. **Results:** Treatment efficiency was 82 (91.11%) in the control group versus 88 (97.78%) in the experimental group. The degree of dissatisfaction was 1 (2.11%) versus 8 (10%). The perceived overall satisfaction was 80 (89%) versus 87 (96.67%), ( $p < 0.05$ ). **Conclusion:** Rehabilitation associated with physical training intervention improved satisfaction and treatment efficiency. **Evidence Level II; Therapeutic Studies – Investigating the results.**

**Keywords:** Soccer; Sports Injuries; Physical Training.

## RESUMO

**Introdução:** O futebol é um dos esportes com maior incidência de lesões, geradas tanto pelo alto desempenho exigido em campo quanto por conflitos físicos entre jogadores. Uma breve reabilitação é essencial para o rendimento do jogador. Percebe-se, de forma empírica, uma alta precoce em pacientes submetidos ao treinamento físico associado, quando comparados aos jogadores destinados à reabilitação tradicional. **Objetivo:** Verificar a influência do treinamento físico na reabilitação de lesões esportivas nos jogadores de futebol masculino. **Método:** Foram selecionados 180 casos de adolescentes masculinos com lesões esportivas internados neste hospital. A divisão em dois grupos foi efetuada aleatoriamente de forma computadorizada afim de evitar diferenças estatísticas na intensidade das lesões. O grupo controle (idade média 14,3±2,45 anos) foi tratado com o protocolo padrão enquanto ao experimental (idade média 15,3±2,95 anos) foi adicionada uma intervenção com treinamento físico. Foram efetuadas entrevistas e questionários envolvendo análise de tempo e gravidade da lesão, lateralidade e localização. O grupo controle recebeu o tratamento norteado nessas informações. Foram coletados a taxa de recuperação e a taxa de satisfação de intervenção. Foi utilizado o Software Estatístico SPSS22.0 para os testes t de student e qui-quadrado. **Resultados:** A eficiência do tratamento foi de 82 (91,11%) no grupo controle contra 88 (97,78%) no grupo experimental. O grau de insatisfação foi de 1 (2,11%) contra 8 (10%). A percepção de satisfação total foi de 80 (89%) contra 87 (96,67%), ( $p < 0,05$ ). **Conclusão:** A reabilitação associada à intervenção de treinamento físico demonstrou melhorar a taxa de satisfação e a eficiência do tratamento. **Nível de evidência II; Estudos Terapêuticos - Investigação de Resultados.**

**Descritores:** Futebol; Lesões Esportivas; Treinamento Físico.

## RESUMEN

**Introducción:** El fútbol es uno de los deportes con mayor incidencia de lesiones, generadas tanto por el alto rendimiento requerido en el campo como por los conflictos físicos entre los jugadores. Una pronta rehabilitación es esencial para el rendimiento del jugador. Se ha observado empíricamente que una recuperación temprana en la rehabilitación de los pacientes se asocia con la adición del entrenamiento físico en comparación con los jugadores que sólo recibieron la rehabilitación tradicional. **Objetivo:** Verificar la influencia del entrenamiento físico en la rehabilitación de lesiones deportivas en jugadores de fútbol masculinos. **Métodos:** Se seleccionaron 180 casos de adolescentes masculinos con lesiones deportivas ingresados en un hospital de Taiyuan. Se realizó una división en dos grupos de forma aleatoria



para evitar diferencias estadísticas en la intensidad de las lesiones. El grupo de control ( $14,3\pm 2,45$  años) fue tratado con el protocolo estándar, mientras que el grupo experimental ( $15,3\pm 2,95$  años) recibió una intervención con entrenamiento físico. Se realizaron entrevistas y cuestionarios que incluían el análisis del tiempo y la gravedad de la lesión, la lateralidad y la localización. El grupo de control recibió un tratamiento basado en esta información. Se recogió el índice de recuperación y el índice de satisfacción de la intervención. Se utilizó el software estadístico SPSS22.0 para la prueba t de student y la prueba chi-cuadrado. Resultados: La eficacia del tratamiento fue de 82 (91,11%) en el grupo de control frente a 88 (97,78%) en el grupo experimental. El grado de insatisfacción fue de 1 (2,11%) frente a 8 (10%). La satisfacción global percibida fue de 80 (89%) frente a 87 (96,67%), ( $p < 0,05$ ). Conclusión: La rehabilitación asociada a la intervención de entrenamiento físico mejoró la satisfacción y la eficacia del tratamiento. **Nivel de evidencia II; Estudios terapéuticos - Investigación de resultados.**

**Descriptores:** Fútbol; Lesiones en Deportes; Entrenamiento Físico.

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## INTRODUCTION

Football is a highly antagonistic sport, in fierce competitions, there are often sprints, sudden stops, changes, turns, jumps, and shifts, even intense sports contact such as tackles and body collisions, prone to sports injuries.<sup>1</sup> At the same time, the football field is open, the confrontation is fierce, and the amount of exercise is large, therefore, the intensity is high, the energy consumption is too fast, it not only tests the physical fitness of the athletes, but also the psychological quality of the athletes, in the case of high mental stress and physical fatigue, the incidence of sports injuries increases.<sup>2</sup> Therefore, football is one of the sports with the highest incidence of injuries, through the analysis of football injuries in colleges and universities, and the mechanism of sports injuries, in order to enable players to understand the causes of football injuries, let athletes effectively prevent football injuries, provide timely treatment for football injuries, helps reduce the chance of sports injuries, improve the fitness, entertainment and other functions of football.<sup>3-4</sup> In this study, 180 cases of adolescent men with sports injuries admitted to this hospital were selected, according to the computer randomization method, divided it into two groups: a control group and an experimental group, routine sports rehabilitation training was used for patients in the control group, for patients in the experimental group, rehabilitation physical training based on the classification of the patient's condition was used, after contrast, after different interventions, the recovery rate of patients in the experimental group and the control group, the satisfaction rate of intervention, the relevant cases are now reported as follows.<sup>5</sup>

## METHOD

### General information

In this study, 180 cases of adolescent men with sports injuries admitted to this hospital were selected, according to the computer randomization method, divided it into two groups: a control group and an experimental group, for 90 patients in the control group, regular exercise rehabilitation training was used, the age of the patients was 13-16 years old, with an average age of ( $14.3\pm 2.45$ ) years old, for 90 patients in the experimental group, rehabilitation physical training based on the classification of the patient's condition is adopted, the age of the patients was 12-16 years old, and the average age was ( $15.3\pm 2.95$ ) years old. There was no difference in the basic data of all patients ( $p > 0.05$ ), and they were comparable. (The situation of the research subjects is shown in Table 1).

**Table 1.** Basic situation of the research objects.

Group	n	Age / year old		Height/cm		Body weight/kg		BMI	
Test group	10	7.9	2.02	139.7	10.78	33.78	6.19	17.24	2.12
Control group	14	7.14	8.49	131.9	8.49	29.95	8.88	17.03	3.46

### Investigation method

The investigation method adopted by the research institute, including interviews and questionnaires in two forms, conducted in three stages: The stage of questionnaire formulation and validity test.<sup>6</sup>

### Document method

The research literature includes primary data and secondary literature. First-hand data, mainly through interview recording materials obtained through interviews, and data obtained from athlete questionnaire surveys. Second-hand materials are mainly consulted through the library and searched on the Internet, obtained documents closely related to research. The content of the literature involves sports injuries, rehabilitation, and rehabilitation physical training.

### Experimental method

For the patients in the control group, regular physical rehabilitation training was used, analyze the severity of the patient's injury, intervene patients according to periodic health rehabilitation training data. The patients in the control group were treated with classified rehabilitation training intervention. According to the patient's sports injury age, gender, hand position, and severity, grading rehabilitation training is carried out. (Common injuries mostly occur in the lower limbs, and there are more injuries to the thigh and ankle joints) According to the patient's injury location and severity, divide it into serious (patients are unconscious, even at risk of paralysis, and the condition is urgent), moderate (The patient has severe muscle strain, ligament damage, etc., need timely and effective treatment), minor (the patient has bruises, bruises, no life threatening, needs to be adjusted, can not exercise) three levels, and adopt a classified rehabilitation training plan, help different patients to restore their physical health. After the patient's condition is stable, severe patients need to be hospitalized for observation and conditioning, it is recommended not to do strenuous exercises in the short term, and to do some rehabilitation training of limb stretching, moderate patients, according to their recovery status and injury site, carry out interventions such as squat, lunge squat, hip extension, ankle extension, etc, observe the physical recovery of patients every week, and those who recover well can be discharged from the hospital.<sup>7</sup>

### Observation indicators

After contrast, after different interventions, the recovery rate of patients in the experimental group and the control group, intervention satisfaction rate.

## Statistical analysis

For the processing of collected data, firstly, questionnaire inspection and questionnaire data sorting were carried out, later, according to the research needs, the percentage, difference test, and intuitive chart drawing were carried out respectively. Data processing uses SPSS22.0 statistical software, analyze two sets of research data, the count data is [n(%)], X2 test is performed; Measurement data is ( $\bar{x} \pm s$ ), t test is performed. P value < 0.05 indicates that the statistical significance is established.

## RESULTS

### Comparison of disease classification between the two groups is shown in Figure 1

As can be seen from Figure 1, comparing the basic data of children, the experimental group showed that 67 cases (74.45%) were mild, 20 cases were moderate (22.22%), serious 1 case (1.10%), non-severe 88 cases (97.78%), mild 58 (64.45%) in the control group, 30 cases were moderate (33.33%), 0 cases were severe (0.00%), 89 cases were non-serious (100.00%) ( $p > 0.05$ ), there is no difference in the condition. Comparison of treatment satisfaction rates between the two groups is shown in Table 2, and see Table 3 for the comparison of effective treatment rates between the two groups

It can be seen from Table 1 and Table 2, the effective rate of treatment in the experimental group was 88 cases (97.78%), and the control group was 82 cases (91.11%), in the experimental group, 1 case (2.11%) was dissatisfied with the treatment, 87 cases (96.67%) of the control group were not satisfied with the treatment in 8 cases (10.00%), and the overall satisfaction rate was 80 cases (89.00%), ( $p < 0.05$ ).

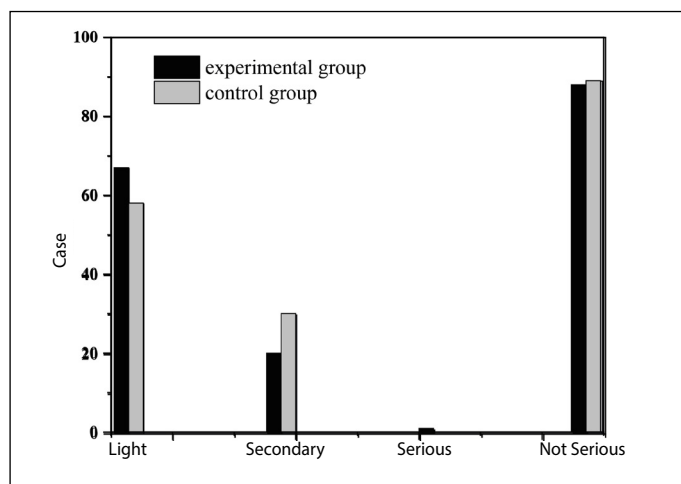


Figure 1. Comparison of disease classification between the two groups.

Table 2. Comparison of treatment satisfaction rates between the two groups [n(%)].

Group	Case	Very satisfied	Basically satisfied	Dissatisfied	Overall satisfaction
test group	90	81 (56.67%)	35 (40.00%)	1 (2.11%)	87 (96.67%)
Control group	90	42 (46.67%)	37 (41.11%)	8 (10.00%)	80 (89.00%)
X2	-	1.5140	0.0208	4.0021	4.0031
P	-	0.101	0.751	0.034	0.034

Table 3. Comparison of effective treatment rates between the two groups [n(%)].

Group	Case	Markedly effective	Efficient	Invalid	Comprehensive efficiency
Test group	90	62 (69.00%)	25 (27.78%)	1 (1.11%)	88 (97.78%)
Control group	90	41 (69.00%)	40 (44.45%)	6 (6.67%)	82 (91.11%)
X2	-	10.1505	5.1418	3.6704	3.6704
P	-	0.001	0.021	0.021	0.021

## DISCUSSION

Some research believes that "excellent athletes are basically in a sub-healthy state, the reason is long-term sports training, the body's adaptability to special sports caused by the changes. At this stage, athletes often experience sports injuries during training, adopt effective and timely interventions, it can help patients recover in time. Athletes want to after rehabilitation training, back to the peak state of sports, need to maintain a good competitive appearance, during sports rehabilitation training, maintain a good recovery mentality, if a second injury is found, the trauma needs to be dealt with promptly, correctly and immediately.<sup>8</sup> And adopt effective nursing measures and intervention methods, ensure the quality and feasibility of the movement. When reducing the athlete's pain, the staff should provide appropriate psychological counseling to the athletes, let him maintain a good attitude and mental outlook, reduce stress, and finally restore the quality of sports.

The probability of sports injuries is relatively high, and most of the patients are sprains and strains. The number of severe patients is small, and through effective rehabilitation training, it can help patients find confidence and restore physical fitness in time. Routine sports rehabilitation training, pay more attention to the physical protection of patients, encourage patients to rest. Adopt classified rehabilitation training nursing intervention, can classify patients with different conditions, drive patients' confidence in treatment, help them establish a targeted rehabilitation training plan, it helps to improve the quality of patients' healing.<sup>9</sup> This research, 180 cases of adolescent men with sports injuries admitted to this hospital were selected, according to the computer randomization method, divided it into two groups: a control group and an experimental group, routine sports rehabilitation training was used for patients in the control group, for patients in the experimental group, rehabilitation physical training based on the classification of the patient's condition was used, after contrast, after different interventions, the recovery rate of patients in the experimental group and the control group, intervention satisfaction rate.<sup>10</sup> Comparing the basic data of children, the experimental group showed that 67 cases (74.45%) were mild, 20 cases were moderate (22.22%), serious 1 case (1.10%), non-severe 88 cases (97.78%), mild 58 (64.45%) in the control group, 30 cases were moderate (33.33%), 0 cases were severe (0.00%), 89 cases were non-serious (100.00%) ( $p > 0.05$ ), there is no difference in the condition. The effective rate of treatment in the experimental group was 88 cases (97.78%), there were 82 cases in the control group (91.11%), and 1 case (2.11%) was unsatisfied with the treatment in the experimental group, 87 cases (96.67%) of the control group were not satisfied with the treatment, 8 cases (10.00%), the overall satisfaction rate was 80 cases (89.00%), ( $p < 0.05$ ).

In summary, using classified rehabilitation training intervention methods, patients can be classified according to their condition, and staged, targeted rehabilitation training in different categories, in order to help young people improve the mood of illness, improve the satisfaction rate and efficiency of treatment, it is recommended to research and promote.<sup>11</sup>

## CONCLUSION

Men's football team players have a higher incidence of sports injuries; Common sports injuries occur in the lower extremities, mainly the thigh, calf, and ankle joints, the degree of injury is mainly mild injury, in the course of injury, the incidence of acute injury is higher than that of chronic injury, abrasions, bruises, muscle and ligament injuries are the most common sports injuries; Physical fitness training for athletes of men's football teams with sports injuries, contribute to the recovery of sports injuries, help to improve and enhance the athletic ability of the athlete's body, especially for improving the athlete's lower limb exercise ability is obvious.

All authors declare no potential conflict of interest related to this article

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