Hindawi
Journal of Nanomaterials
Volume 2022, Article ID 5094560, 8 pages
https://doi.org/10.1155/2022/5094560

Research Article

Nanotube Combined Rehabilitation Therapy in the Treatment of Knee Arthritis in Basketball Players

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Received 8 March 2022; Revised 22 April 2022; Accepted 7 May 2022; Published 3 June 2022

Academic Editor: Awais Ahmed

With the improvement of people's attention to health, basketball is a sport that can strengthen the body and deeply loved by people. However, basketball involves a lot of physical activity and a quick stop technique, which increases the risk of arthritis. The reason for this paper is to concentrate on the utilization of nanotube joined restoration treatment in the treatment of knee joint pain in basketball players. This paper first introduces the structure and properties of carbon nanotubes, analyzes the pathology of knee arthritis and the causes of knee arthritis in basketball players, and discussed the knee arthritis rehabilitation treatment method. According to the diagnostic criteria of osteoarthritis and the significant incorporation and rejection measures, a sum of 50 patients with knee osteoarthritis were chosen as the review subjects and separated into test gathering and control bunch. The benchmark group was treated with conventional electroacupuncture, and the exploratory gathering was treated with nanotubes as repair materials for knee arthritis. The experimental results show that the application of nanotube combined rehabilitation therapy in the treatment of knee arthritis in basketball players is practical to a certain extent. The total score of WOMAC in the two groups after treatment decreased to a certain extent compared with that before treatment, but the difference in the experimental group was more obvious, and the difference was significant after statistical analysis ($P < 0.05$).

1. Introduction

Influenced by international high-level games, such as the NBA, basketball is gaining popularity among the general public. However, basketball players may suffer some sports injuries due to the influence of factors such as fierce confrontation, fierce competition, frequent physical contact, and playing environment. On the one hand, sports injury will not only bring physical inconvenience and pain to basketball participants but also affect their normal work and study. Serious injury will also make people physically disabled and even lose their lives. On the other hand, sports injuries have a negative impact on the smooth development of basketball.

As a normal one-layered nanomaterial, carbon nanotubes stand out because of their one of a kind construction and physical and synthetic properties. Carbon nanotubes have strong mechanical properties, stable chemical properties, special electronic structure, and optical properties and have a wide range of applications in material variation and environmental science, especially in the field of biomedicine. The discovery and development of special properties of carbon nanotubes is a very active research, which has laid a foundation for the treatment of knee arthritis patients.

Acrisio et al. reported theoretical studies on the structure and phonon properties of single-walled and double-walled carbon nanotubes under hydrostatic pressure. Their results confirmed a dramatic change in the volume of the single-walled carbon nanotubes at high pressures [1]. Their report did not address the real problem. Loredo-perez et al. aimed to quantitatively study the injurious spontaneity, knee edema, proinflammatory cytokines, bone mineral density, and microstructure of unilateral knee arthritis mice fed a high-fat diet. Their method was to give standard diets (SD) and HFD to male ICR mice starting at 3 weeks of age. The serum levels of il-1 and il-6 were first injected by CFA and then analyzed by ELISA for RANKL and microcomputed tomography [2]. Although they conducted quantitative

studies on mice fed with HFD, they still need to conduct qualitative studies. Straker et al. team found that arthritis of the hip and knee afflicts those who continue to pursue exercise as they age. They discussed mechanical measures to reduce joint load, including support, footwear, and foot orthotics/insoles. Biomechanical considerations of applying gait retraining and joint unloading techniques are proposed [3]. The method they proposed has no practical application value.

This paper first introduces the structure and properties of carbon nanotubes, analyzes the pathology of knee arthritis and the causes of knee arthritis in basketball players, and discussed the knee arthritis rehabilitation treatment method. According to the diagnostic criteria of osteoarthritis and the relevant inclusion and exclusion criteria, a total of 50 patients with knee osteoarthritis were selected as the study subjects. The control group was treated with ordinary electroacupuncture, and the experimental group was treated with nanotubes as repair materials for knee arthritis. The experimental results show that the application of nanotube combined rehabilitation therapy in the treatment of knee arthritis in basketball players is practical to a certain extent. Nanotube can withstand high temperature and is harder than steel, so it has a higher repair effect than traditional repair methods [4].

2. Treatment of Knee Arthritis with Nanotube and Rehabilitation Therapy

2.1. Nanotubes. As typical one-dimensional nanomaterials, carbon nanotubes (CNTs) have unique physical, chemical, and electronic properties [5, 6]. Carbon nanotubes are one-dimensional hollow tubular nanomaterials formed by curling graphite sheet layers. Single-walled carbon nanotubes are framed by twisting a solitary layer of graphite, and multi-walled carbon nanotubes are shaped by twisting different layers of graphite [7, 8]. The specific structure formed by carbon nanotubes is related to the Angle and curvature when the graphite sheet is curled into a tube, so it may have different chirality, which are zigzag, armchair, and chiral.

Because of the unique and stable special closed topological structure of CNTs, CNTs will not break when subjected to bending but can achieve elasticity according to volume changes, with high strength and toughness [9]. It has excellent performance in physical mechanics, electricity, heat, and so on. When CNTs or their functionalized products are added to polymer or composite materials, their physical and mechanical properties, thermal properties, and electrical properties can be improved to a certain extent.

2.2. Basketball Players and Knee Arthritis

2.2.1. Knee Arthritis. Osteoarthritis (OA) is a chronic osteoarthritis with prominent pathological features. OA is a kind of degenerative change of articular cartilage and secondary bone hyperplasia [10, 11]. Clinically, chronic joint pain, stiffness, swelling, and joint dysfunction are the main manifestations. As the knee joint is the most complex joint in the whole body with the highest load and the heaviest shear force, osteoarthritis (KOA) is most likely to occur at this joint [12, 13]. The symptoms of KOA are mainly manifested as knee swelling and pain when walking up and down stairs, sitting and standing up, knee pain and discomfort, etc. There will also be swelling, popping, and fluid accumulation in patients [14]. The clinical manifestations are degeneration of local cartilage tissue of knee joint, formation of osteophyte at knee joint edge, and changes of subchondral bone reactivity [15].

The entire course of disease development affects not only the articular cartilage but also the entire knee joint, including the subchondral bone, joint capsule, ligament, synovium, and the surrounding muscles of the knee joint [16, 17]. The onset of the disease is characterized by abnormal biochemical metabolism of the knee cartilage, and then damage to the structure of the knee joint, resulting in fibrosis, gap, ulcer, and damage to the entire knee joint surface, leading to knee joint pain and abnormal function [18].

2.2.2. Causes of Knee Joint in Basketball Players. Basketball sports have a lot of physical activities and technical movements such as quick stop. When basketball players use these technical movements to play games, they are likely to cause great sports injuries to themselves. During the movement of the knee, the knee needs to bounce and squat continuously. This instantaneous explosive action keeps the knee in a bent state for a long time, which will cause the knee joint to bear a lot of extra load, thus causing sports injuries. The knee is the most vulnerable part during exercise. Once this part is damaged, the level of the athlete will be greatly affected, and this effect is not short-term, it will cause great harm to the athlete.

2.3. Knee Arthritis Rehabilitation Therapy

2.3.1. General Treatment. If KOA patients' symptom is lighter, function is normal, should be given priority to with preventive measures and daily care, to related education and help the patients study, also should have the health-related behavior in daily life, to be able to slow the progress of the disease, and make the patient's quality of life improved, make the medical expenses of patients with lower [19, 20]. The contents of KOA education include posture, joint function, joint protection, disease, psychology, and so on. Patients should be allowed to understand the basic knowledge of the disease, to avoid catching cold or staying in a certain position for a long time, as well as excessive joint load. For obese patients, they should adopt such methods as diet control, weight loss, restriction of climbing activities, insistence on driving instead of walking, and reduction of activities when joints swell and should pay attention to the combination of work and rest, thereby gradually enhancing their physique. A systematic review of evidence-based medicine shows that therapeutic interventions based on patient education, exercise therapy, and weight control measures are not only cost-effective but also have good long-term efficacy and should be used as the core clinical treatment. Core treatments include self-management, health education, weight and information control, and psychological

intervention. Health education can significantly improve the short-term and long-term efficacy of KOA therapy.

2.3.2. Drug Therapy. Acetaminophen, nonsteroidal anti-inflammatory and analgesic drugs, traditional Chinese medicine, blood-activating and collateral-activating drugs or dialectical drugs, and external drugs can be used. Tramadol and other drugs can be used for severe pain [21, 22]. The use of acetaminophen (Max. 4 g/d, OTC single dose <650 mg) as the preferred therapeutic agent has been recommended in several guidelines. If full-dose acetaminophen is not effective in patients, ACR recommends oral or local administration of nonsteroidal anti-inflammatory or intra-articular injection of corticosteroids. Now, clinical also commonly used chondroitin sulfate, glucosamine, double reactine and vitamins, and other drug treatment. It has been reported that intra-articular injection of corticosteroids, sodium hyaluronate, deer and melon polypeptides, ozone, and joint cavity irrigation has been widely used and achieved good results. At present, there is still no strong evidence to prove that glucosamine, chondroitin, and other nutritional treatments can be used as the routine treatment of OA. Corticosteroids can relieve joint pain in the short term, but long-term repeated use can cause joint damage. Therefore, the authoritative guidelines are recommended to be used under certain conditions. Although there are many research methods for restoring articular cartilage, such as changing joint load and periosteum, perichondrium transplantation, chondrocyte and mesenchymal stem cell transplantation, artificial matrix, and growth factors, there is no method that can completely restore normal articular cartilage. Against glucosamine or chondroitin drugs, intra-articular injection of hyaluronic acid, duloxetine, and opioid painkillers is not recommended.

2.3.3. TCM Treatment. There are many methods such as internal administration of traditional Chinese medicine, external treatment, acupuncture and moxibustion, massage, acupotomy, and new treatment combining traditional techniques with modern science and technology. In the theory of the meridians, the meridians have the functions of articulation of limbs, restraint of bones, viro-body, and locomotion. Based on the theory of tendons, the special features and rules of tendons diseases were studied, and the tendon disease has carried on the thorough exploration, and it was concluded that pathological tendons were the pathogenic factors of tendons diseases, and a simple and feasible diagnostic method was put forward, which laid a solid theoretical foundation for the treatment. Silver needle therapy is beneficial to the communication and combination between the theory of biomechanic dynamic balance and the etiology and pathology of chronic soft tissue injury in the overall concept of traditional Chinese medicine and western medicine surgical treatment and has achieved good results. Acupuncture points in traditional Chinese medicine are closely related to vascular nerves. Under the stimulation of acupuncture points, blood supply of knee joint is improved and blood stasis is improved. Acupuncture can also directly stimulate the nerve tissue or pain source area conducting pain sensation, block the pain conduction in the nerve fiber, and inhibit the response of spinal dorsal horn cells to injurious stimuli. It may also effectively strengthen the function of muscle groups in various parts of the knee joint, consolidate the normal physiological function of the knee joint, and maintain the stability. The short-term and long-term effects of early knee arthritis were observed, and the results were more satisfactory than that of drug therapy. In the aspect of antiexercise fatigue, acupuncture therapy has advantages that other therapies do not have. The action mechanism of traditional Chinese medicine therapy is complex, and the study on the action principle is yet to be further studied. The traditional Chinese medicine therapy and the emerging Chinese medicine therapy have different standards in terms of treatment norms, which also need to be further developed.

2.3.4. Physical Therapy. Physical therapy was aimed at alleviating or eliminating the symptoms of KOA through the rational use of various physical factors. Such methods can improve local blood circulation, relieve muscle spasm, promote the absorption and dissipation of joint inflammation, and reduce bone pressure and pain. Compared with internal medicine and surgery, physical factor therapy is more economical in cost and can reduce medical costs. At the same time, it is additionally of incredible importance to work on patients' personal satisfaction and lessen family and social weight. Physical therapy generally uses physical properties such as sound, optics, electricity, or mechanics as well as cold and heat conduction to carry out corresponding treatment without sequelae [23]. The application of low-intensity pulsed ultrasound to promote cartilage repair in osteoarthritis has been found to have a good effect. The application of modulated medium frequency electrotherapy has a continuous and significant effect on relieving knee joint pain and is of great significance. The results of low-frequency thermal vibration magnetic therapy showed that the pain intensity score of the patients was significantly reduced after treatment. Low-intensity laser intravascular irradiation for elderly osteoarthritis can reduce the dosage of NSAIDS. Some scholars have summarized the physiotherapy scheme of KOA. If the acute knee joint swelling is obvious, the main method should be analgesia and detumescence. At the same time, cold therapy can be used to shrink the local blood vessels so as to reduce exudation and increase the pain area. In the chronic phase, ultrasound therapy and warm or micro heat ultrashort wave and microwave therapy should be used to enhance the local blood circulation. For example, if ligament and soft tissue are involved, medium frequency or low frequency electrotherapy should be used to release adhesion. If necessary, two physical factors can be combined to improve the therapeutic effect.

2.3.5. Exercise Therapy. Maintain normal composition and structure and mechanical properties of articular cartilage must make the joints have a certain weight, while maintaining the normal articular cartilage type, intensity, and frequency of the load there is a wide range, but when the intensity or frequency of the load above or below this range,

destroy the balance of the synthesis of articular cartilage degradation mechanism, composition, and ultrastructural changes of cartilage. Proper exercise is necessary to maintain the normal use of articular cartilage. Sports training has the advantages of noninvasive, efficient, and lasting and is favored by more and more doctors at home and abroad.

Through exercise training, the muscle strength around the knee joint is enhanced, and the symptoms of muscle atrophy are alleviated, so as to ensure the normal transmission of joint mechanics. At the same time, the stability of joints has been improved, so that the joints in a good state of protection can prevent the development of OA. Quadriceps strength training can steadily improve knee joint function and increase walking distance. Clinicians often use this training method to improve knee joint function. Routine quadriceps muscle strength training can relieve symptoms and slow down the progression of joint degeneration to a certain extent. Meanwhile, it can also increase the mobility and stability of the knee joint and inhibit or slow down the vicious cycle of joint instability in KOA. Although many scholars believe that training quadriceps muscle strength can relieve the symptoms of joint pain, strengthening quadriceps muscle strength training cannot improve the joint movement of the knee joint. Although quadriceps exercise improved muscle weakness, it did not achieve the desired effect of improving the symptoms of KOA. However, the researchers still agree that quadriceps rehabilitation exercise can be performed according to patients' different conditions and individual differences.

With the exception of the quadriceps, the stability of knee activity is determined by the ratio of muscle strength between the quadriceps and the hamstring. In patients with KOA, the extensor knee and the flexor knee muscles have the same loss of strength. Therefore, attention should be paid to both the knee extensor muscle strength training and the flexor knee muscle strength training. The results can improve the muscle strength, further coordinate the flexor and extensor muscle strength ratio, and increase the stability of the knee joint, thus effectively controlling or slowing down the development of KOA's disease. Constant speed muscle strength training requires the assistance of exercise equipment, through the equipment to adjust the resistance at a constant speed, and in the process of movement, the muscle in all angles can occur to maximum contraction and maximum tension, so as to achieve the best training effect. Isokinetic muscle strength training can effectively improve the muscle strength of quadriceps femoris and other muscle groups around the knee joint, significantly improve the stability of the joints of patients with KOA, and effectively improve the joint function of patients. However, isokinetic muscle training equipment has the characteristics of expensive, complicated operation, and high treatment cost, so it is still difficult to popularize at present. Chain of lower limb muscle training can effectively improve the limb motor function, muscle chain training emphasized to joint training of muscles, rather than a single muscle training, confirmed in the muscle chain theory emphasizes the balance between muscle in the chain and the importance of coordination, and lower limb muscle chain have positive effects on KOA rehabilitation training. However, there is a difference between isokinetic muscle strength training and quadriceps muscle strength enhancement between male and female patients. Through isokinetic muscle strength training, the quadriceps muscle strength can be effectively enhanced in male KOA patients. However, this concept is not suitable for female KOA patients.

Insisting on isometric length, isometric tensioning exercise can make joint ache alleviate effectively, make joint stability increase, and make joint function improve, and its long-term effect is better than sodium hyaluronate. Because range of motion is positively correlated with the risk of injury and falls, increasing range of motion can help reduce pain. For KOA patients, emphasis should be placed on stretching the quadriceps, hamstrings, and triceps of the calf to increase the range of motion of the joint. Static stretch training had a significant therapeutic effect on KOA patients. Six weeks of static stretch training resulted in a significant decrease in WOMAC osteoarthritis index score. For the KOA patients treated with joint slackening, a medical procedure, the strolling velocity and step length of the patients altogether worked after therapy contrasted and before therapy, and the aggravation was essentially diminished. The effect was significantly better than that of the low-frequency pulse electric group, but the difference was not significant compared with the electric stimulation group 4 weeks after the end of treatment. Acupuncture combined with proprioceptive sensation training is conducive to the improvement of patients' proprioceptive sensation, which has a positive effect on the stability, flexibility, and self-control of the affected knee joints, and at the same time improves and consolidates the efficacy of acupuncture. In overweight patients, weight loss combined with exercise or even weight loss alone can achieve better results in alleviating pain, improving function, muscle strength, and quality of life. Therefore, weight control is strongly recommended as a necessary treatment. In addition to weight loss, joint stress reduction exercises can be performed by water movement or suspension. Patients with KOA must be trained with aerobic exercises due to lower limb dysfunction and decreased body capacity. Aerobic exercise can enhance heart and lung function. For the elderly, moderate and low-intensity aerobic exercise such as walking, gymnastics, tai chi, and swimming can be used in the remission period of KOA patients. After aerobic exercise, KOA patients not only effectively relieved their joint pain but also improved their body function, increasing their walking speed and walking distance and maintaining their body function for about 18 months. Therefore, to lower the intensity of the exercise, adhering to long-term training is able to obtain better results. Numerous studies have shown that exercise is not only a cure for KOA but also a way to prevent it. Should, therefore, on the basis of KOA patients to evaluate their physiological characteristics, the condition of monitoring of autologous, develop sustainable personalized safe, effective, strong adaptability of exercise prescription, make movement dysfunction in patients with improved, pain relief and disease development delay, delay or avoid surgery time and improve the quality of life.

Table 1: Comparison of distribution of gender, age, and disease course of patients.

Group	Number of cases	Male	Female	Age	Course of disease (month)
Experience group	25	14	11	26	6
Control group	25	13	12	25	5.8

Table 2: Comparison of WOMAC scores between the two groups before and after treatment.

Symptoms	Group	Integral	
		Experimental group	Control group
The pain	Before	11.21	10.78
	After	3.32	3.96
Stiff joints	Before	32.07	31.15
	After	46.61	45.89
Physiological function	Before	3.79	4.85
	After	2.14	2.93
The total score	Before	21.21	25.63
	After	27.14	33.41

3. Experiments of Nanotube Combined Rehabilitation Therapy

3.1. Subjects. In this paper, patients with KOA basketball players who were qualified for primary screening from January 2019 to June 2019 for diagnosis and treatment were selected for the observation of cases, and they were allocated to two groups by random number table in chronological order. The experimental group used nanotubes and electroacupuncture combined with rehabilitation therapy. Electroacupuncture is based on traditional acupuncture and moxibustion by adding low-frequency pulsed electrical stimulation, and through acupuncture and moxibustion to regulate qi, the human body's biological microcurrent is combined with acupuncture. The patients in the control group were treated with cupping. A total of 50 patients conforming to this study were included. The specific data are shown in Table 1.

3.2. Diagnostic Criteria. The analytic models of this study were intermittent knee torment in the knee over the most recent multi month; X-beam pictures (standing or weight-bearing) showed restricting of joint space, subchondral osteosclerosis or potentially cystic degeneration, and osteophyte arrangement at joint edges.

3.3. Experimental Methods. Each subject was given a two-week course of treatment as follows:

Hamstring training: In the prone position, perform the following movements: (1) straight knee and hip extension training; (2) bend the knee and bend the calf; (3) internal and external rotation of the calves; and (4) internal and external rotation of lower limbs.

Acupuncture point selection is as follows: yinmen point, weizhong point, weiyang point, yingu point, heyang point, and chengshan point; the method of acupoint selection was in accordance with the national standards of acupuncture and moxibustion points. The depth and angle of acupuncture were also in accordance with the standards. After obtaining qi, the acupuncture was replenished and deflated, and the acupuncture was retained for 30 min.

Yk-2000a modulated if frequency therapeutic instrument was used, and the electrodes were placed in popliteal fossis-side juxtaposition. The osteoarthropathy prescription in the multistep treatment procedure was selected, and the treatment lasted for 20 min. The intensity of current output should be adjusted according to the patient's tolerance and comfort level.

3.4. Statistical Methods. Results statistical analysis was processed by statistical product and service solutions 20.0 statistical software. The comparison of measurement data met the t-test of normal distribution with homogenous selection of variance, while the t' test of nonhomogenous selection of variance did not meet the rank-sum test of normal distribution. The comparison of counting data was conducted by X^2 test, and the rank-sum test was conducted by rank data. All measurement data are represented by XSD. $P < 0.05$ indicated that the difference was statistically significant. The statistical analysis methods of measurement data can be divided into parametric test method and nonparametric test method.

4. Discussion of Nanotube Combined Rehabilitation Therapy

4.1. Comparison of WOMAC and VAS Scores between the Two Groups

4.1.1. Comparison of WOMAC Scores between the Two Groups before and after Treatment. Toward the finish of the one courses of treatment, the two gatherings acquired specific impacts on the WOMAC manifestation all out score. It was speculated that both the electroacupuncture group and the normal acupuncture group had treatable KOA, while the treatment group had better efficacy than the control group. WOMAC single symptom score, pain, joint stiffness, and physiological function under the two treatment methods have obtained a certain effect. Comparison of WOMAC scores before and after treatment is shown in Table 2 and Figure 1.

As should be visible from Table 2 and Figure 1, the all out WOMAC score of the test bunch changed essentially with the treatment, that is to say,$P < 0.05$, which was measurably critical. The complete score of WOMAC in the benchmark group changed essentially with the treatment, and the combined$t$-test showed$P < 0.05$, which was genuinely huge. In this way, it tends to be estimated that the improvement of absolute indications in the exploratory gathering and control bunch after treatment is superior to

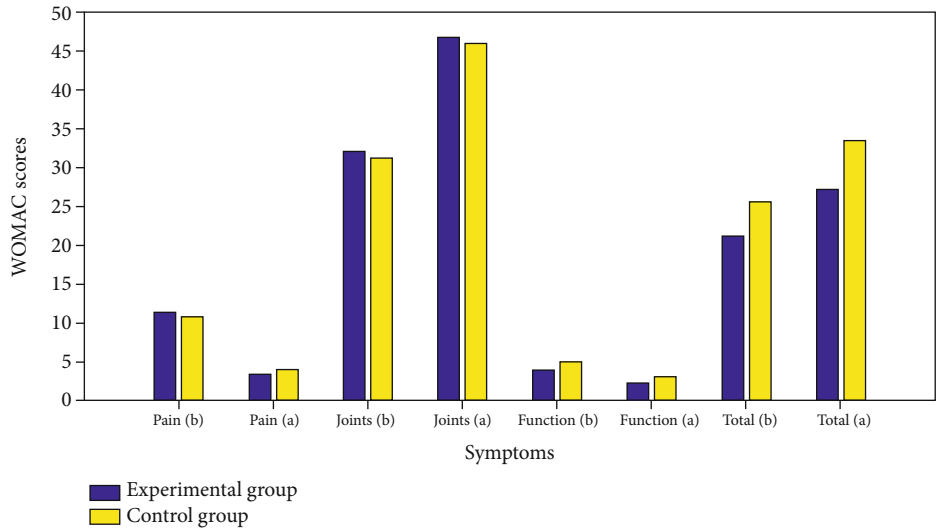

Figure 1: Comparison of WOMAC scores between the two groups before and after treatment.

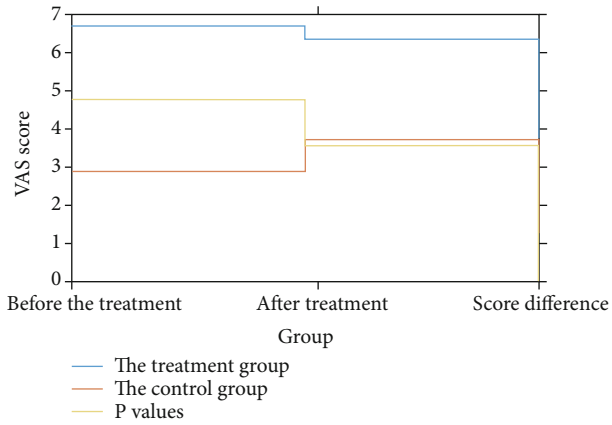

Figure 2: Comparison of VAS scores.

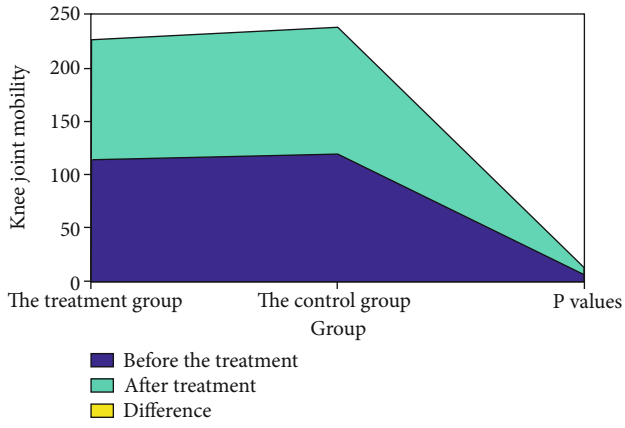

Figure 3: Comparison of knee joint mobility between the two groups.

that before treatment. The distinction in the absolute score between the two gatherings was huge ($P < 0.05$), so it very well may be viewed as that the test bunch was superior to the benchmark group in working on the complete side effects. You can see the comparison between the control group and the experimental group, and the experimental group is significantly better than the control group.

According to the single symptom score, the pain score of the experimental group was significantly different before and after treatment, with statistical significance ($P < 0.05$). The changes of joint stiffness before and after treatment were significant ($P < 0.05$). There were significant differences in the scores of physiological function before and after treatment ($P < 0.05$). Therefore, it could be considered that the improvement of each single symptom in the treatment group was better than that before treatment. In the control group before and after treatment, the pain single score difference is obvious, with statistical significance ($P < 0.05$), joint stiffness score changes before and after the treatment, with statistical significance ($P < 0.05$), and physiological function score before and after the treatment, with statistical significance ($P < 0.05$), can be thought of as controlled in improving individual symptoms after treatment and was better than before treatment.

4.1.2. Comparison of VAS Scores. The VAS is a pain scale that gives pain a score of 10, with a score of 2 showing no aggravation, a score of 10 demonstrating serious agony, and a center score demonstrating changing levels of torment. Patients were approached to check the degree of agony on a size of 2 to 4 for gentle pain, 5 to 7 for moderate torment, and 8 to 9 for serious torment. Correlation aftereffects of VAS scores between the two gatherings are displayed in Figure 2.

As can be seen from Figure 2, there was a huge distinction in VAS score between the treatment bunch and the treatment bunch ($P < 0.05$). The VAS score of the benchmark group changed fundamentally with the treatment ($P < 0.05$). Along these lines, it tends to be presumed that the improvement of all out side effects in the treatment bunch and the benchmark group is superior to that before

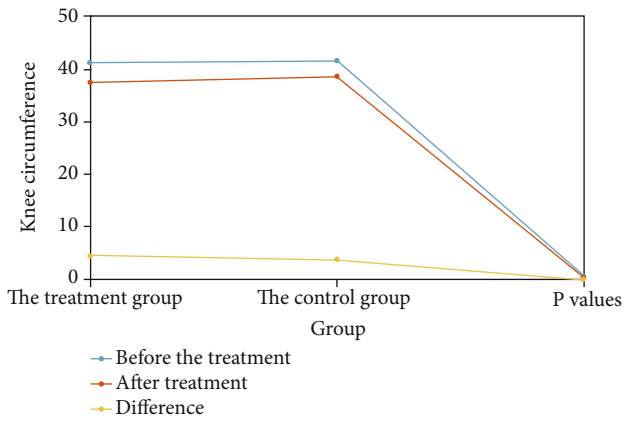

Figure 4: Comparison of knee circumference between the two groups.

treatment. There was no critical distinction in VAS score between the two gatherings before treatment ($P > 0.05$). VAS scores of the two gatherings were viewed as equivalent before treatment, and the distinction in VAS scores between the two gatherings was critical after treatment ($P < 0.05$). It very well may be viewed as that the corrective impact of the treatment bunch is superior to that of the benchmark group. So you could argue that the treatment group was better at improving pain symptoms than the control group.

4.2. Comparison of Knee Joint Mobility and Circumference Diameter between the Two Groups

4.2.1. Comparison of Knee Joint Mobility between the Two Groups. With the treatment, the scope of movement and the circuit breadth of the knee joint in the two gatherings was improved, and the thing that matters was genuinely huge. The impact of working on the scope of movement in the test bunch was superior to that in the control needle therapy bunch. Electroacupuncture has a solid pain relieving impact, and this study accepts that the scope of movement of the joint is generally impacted by torment, which makes it comprehended that the adequacy of the nanotube in working on the scope of movement of the joint is superior to that of the control group. The examination consequences of knee joint portability between the two gatherings are displayed in Figure 3.

As should be visible from Figure 3, the scope of movement of the joints when treatment was fundamentally divergent in the treatment bunch, with factual importance ($P < 0.05$). The scope of movement of the joints in the benchmark group was essentially different with the treatment ($P < 0.05$). Along these lines, it very well may be theorized that the improvement of absolute indications in the test gathering and control bunch after treatment is superior to that before treatment. There was no critical contrast in scope of movement between the two gatherings before treatment ($P > 0.05$), demonstrating that the scope of movement of the knee joint before treatment was equivalent between the two gatherings, and there was no huge distinction in scope of movement between the two gatherings after treatment ($P > 0.05$). Along these lines, it tends to be theorized that the improvement of scope of movement in the test bunch is like that in the benchmark group.

4.2.2. Comparison of Periknee Diameter between the Two Groups. With the treatment, the two gatherings of joint versatility and knee around the improvement, measurably critically contrast. The distinction between the two gatherings of changes around the knee joint was not measurably huge, showing that there was no distinction in the capacity of the two gatherings to switch up the knee joint. In other words, the experimental group has the same effect of reducing knee swelling as the control group. The comparison of the two groups of data is shown in Figure 4.

The data in Figure 4 represent the pathogenic causes of external causes to the knee joint. As should be visible from Figure 4, there was a critical contrast in the periwidth of the knee joint in the treatment bunch with the treatment ($P < 0.05$). The fringe distance across of the knee joint was altogether unique with treatment in the benchmark group ($P < 0.05$). Subsequently, it very well may be viewed as that the periknee breadth of the test bunch and the benchmark group is more modest than that before the treatment. There was no critical distinction in the peribreadth of the knee joint between the two gatherings before treatment ($P > 0.05$), showing that the periwidth of the knee joint before treatment was practically identical between the two gatherings, while there was no huge contrast in the perimeasurement of the knee joint between the two gatherings after treatment ($P > 0.05$). The outcomes showed that there was no distinction in the peribreadth of knee joint between the two gatherings after treatment, and the degree of progress in the periwidth of knee joint was something similar between the two gatherings.

5. Conclusions

In this review, the utilization of nanotube joined with recovery treatment in the treatment of knee joint pain was considered by noticing WOMAC and VAS scores with the treatment in the trial bunch and the benchmark group and looking at the scope of movement and periphery of knee joint in the two gatherings. The outcomes showed that the utilization of carbon nanotubes in the restoration treatment of knee joint pain was more powerful than the recovery treatment alone.

Albeit the pathogenesis of KOA cannot be completely explained in this review, biomechanical factors assume a significant part in the pathogenesis and treatment of KOA. Clinicians should lead a thorough and comprehensive evaluation and make treatment arrangements for joint security and personal satisfaction improvement in patients with KOA. In the treatment of KOA, consideration ought to be paid to the general insurance and thorough treatment of the knee joint.

The treatment time in this study was only 2 weeks, and knee osteoarthritis, as a chronic disease, requires a longer treatment time to improve its condition. Compared with its long treatment time, the treatment time of only 2 weeks

in this study is relatively short, and due to the different curative effects, the follow-up results of this study also have certain differences. There are still some deficiencies in the study of knee arthritis in this paper, which is expected to be made up for in future research.

Data Availability

No data were used to support this study.

Conflicts of Interest

The author declares that they have no conflicts of interest.

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