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**ABSTRACT**  
**RECENT TRENDS IN MEDICAL DEVELOPMENT AND HUMAN**  
**HEALTH**

**T**his supplement on Recent Trends in Medical Development and Human Health carries selected abstracts presented in 2nd International Conference on Public Health and Hygiene (ICPHH2019), held in Zhengzhou, China during October 26-28, 2019, to provide an opportunity for researchers, practitioners, and educators to exchange research evidence, practical experiences, and innovative ideas on issues related to public health and hygiene.

For the purpose of contributing to medical development and human health, a supplement was brought out on the theme of Recent Trends in Medical Development. Based on the strict criteria of originality, significance, relevance and contribution to the field, 115 abstracts were selected for the supplement out of 243 short papers and abstracts received, and they were in final format without being published elsewhere.

All the abstracts published in the issue are of the standard essential for publication. These abstracts would be of value to academic research and clinical practice and would provide a clearer sense of direction for further research, as well as inspiring researchers in the related fields to explore in-depth research. We would like to place on record their sincere thanks to the publisher and The Journal of Pakistan Medical Association for this very special opportunity to contribute to a special supplement.

We also wish to thank all the referees for their kind support and help. Finally, we would like to thank the authors for their contribution to this supplement. Without the support of the authors and the referees, it would have been impossible to prepare this supplement for our readers.

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## The Effect of Different Nursing Methods in Rehabilitation Training of Traumatic Orthopaedic Patients

Feifei Luo

### Abstract

**Objective:** Conservative treatment is generally used for fractures, and specific surgical treatment is needed for patients with serious conditions. For example, traumatic vertebral fractures are now treated with percutaneous vertebroplasty (PVP) and percutaneous kyphosis (PKP). For a period of time before full recovery, At the same time, fracture patients need to avoid exercise because of long-term fractures, this study mainly analyses the effect of different nursing methods in rehabilitation training of traumatic orthopaedic patients.

**Methods:** From June 2018 to December 2018, 90 patients with orthopaedic trauma were divided into control group (n = 45) and intervention group (n = 45). The patients in the control group were given routine nursing and routine rehabilitation training. The intervention group adopted the nursing method of combining the whole nursing with the key part nursing, all-round nursing intervention including preoperative health education and psychological nursing, diet nursing, pressure sore prevention nursing and rehabilitation training were adopted. The intervention effects of the two groups were compared.

**Results:** The nursing satisfaction of patients in the intervention group was 91.11%, which was significantly higher than that in the control group (64.44%). The difference was statistically significant ( $p < 0.05$ ), and the scores of pain and discomfort in the observation group were significantly lower than those in the control group ( $p < 0.05$ ).

**Conclusion:** Different nursing methods can effectively improve the psychological state of patients in course of the disease, improve patients' understanding of the disease, conducive to the recovery of the disease, worthy of clinical promotion.

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## Automatic Extraction Method of Local Weak Features in Interactive Medical CT Images

Zhong Li<sup>1</sup>, Xiaolong Li<sup>2</sup>

### Abstract

**Objectives:** Medical CT image is an important means to observe patients' condition at present. According to the data of 2017, more than 95% of patients with diseases in China have been scanned by CT. The influence of the environment of some medical CT images leads to the poor clarity of local images, Therefore, which feature can improve the accuracy of local weak features of CT images and improve the treatment effect should be identified.

**Methods:** The image characteristics of medical CT images were obtained by gray level co-occurrence matrix method, the classification of medical CT images was accomplished by support vector machine, and corresponding improvement schemes were proposed according to practical application requirements.

**Results:** The results show that the proposed method is very accurate in extracting weak features. However, there are differences in the extraction results due to the different conditions of patients.

**Conclusion:** Firstly, according to the existing technology and recent research progress, this paper proposes a method to accurately extract the local weak features of medical CT images, the proposal of a new local weak feature extraction method plays an important role in the rehabilitation of patients. The method should be improved continuously.

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## Hearing Detection in Children with Hearing Impairment of Different Ages from 0 to 3 Years Old

Lin Li

### Abstract

**Objective:** The audiological evaluation of deaf children was mostly based on simple acoustic impedance or short-sound brainstem auditory evoked potential (ABR) tests. Acoustic immittance test can only get a very rough understanding of the subjects' hearing condition; the importance of sound audiological assessment in the detection and rehabilitation of hearing impaired children.

**Methods:** Among 17 children with hearing impairment, 12 were males, 5 were females, aged 0-3 years, 11 of whom had unknown causes and 6 had a clear history of ototoxic drugs. GSI-Tympstar middle ear analyser was used to test. Interacustics AC40 pure tone audiometer children's visual enhancement audiometry or conditional game audiometry according to their cooperation was applied. All the instruments and sound fields were calibrated to meet the standards.

**Results:** Of the 17 cases, 3 had normal hearing, 14 had sensorineural hearing loss, of which 1 had mild to moderate to severe hearing loss in both ears, Except for one case wearing hearing aids, none of them were wearing hearing aids, and had not received formal auditory assistance.

**Conclusion:** Accurate results of children's audiology test should depend on comprehensive test. The principle of children's audiometry is to get the threshold of binaural behavioural audiometry as accurately as possible.

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## The Effect of Oil Painting Colour on the Remission of Patients with Anxiety Disorder

Xuewei Su

### Abstract

**Objective:** The colour of oil painting is an important language and main means to achieve the expression of oil painting. The characteristics of anxiety disorder are mainly reflected in emotion. The effect of oil painting on the remission of anxiety disorder is analysed.

**Methods:** From August 2018 to February 2018, 180 patients with mental anxiety disorder in affiliated hospitals of a city were randomly divided into intervention group and control group, the psycho physiological indexes before and after simulated stress were detected by multi-conductive physiology instrument and re-examined after 1 month of treatment. The scores of anxiety self-rating scale and changes of vital signs were compared between the two groups.

**Results:** After oil painting colour intervention, the heart rate and low-frequency peak power of anxiety patients were significantly higher than those of the control group. The anxiety and depression scores of the intervention group were significantly lower than those of the control group on days 1, 2 and 3 of the oil painting colour intervention, and the vital signs of the intervention group were more stable than those of the control group ( $P < 0.05$ ).

**Conclusion:** The oil painting colour effect has the obvious relief effect to the anxiety disorder patient's condition.

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## Quantitative Study on the Long-term Effects of Cardiac Injury in Rats Based on Artificial Intelligence Technology

Chunzhi Xiang

### Abstract

**Objective:** The heart is the most important power organ of the body's circulatory system. In this study, artificial intelligence technology was used to explore the dose-response relationship by detecting the cardiac function of rats.

**Methods:** 220 male Wistar rats were irradiated with 0 mW/cm<sup>2</sup>, 2.5 mW/cm<sup>2</sup>, 5 mW/cm<sup>2</sup>, 10 mW/cm<sup>2</sup> microwave continuously (once \* 6 min/d, 5 times/week, 30 days). At 6 h, 7 d, 14 d, 1 m, 3 m, 6 m, 9 m, 12 m and 18 m after irradiation, Ca<sup>2+</sup>, AST, 12 m and 18 m in rat peripheral serum were detected by automatic blood biochemical analyser.

**Results:** There was no significant abnormality in cardiac function and tissue structure of rats in 2.5 mW/cm<sup>2</sup> group within 18 m after radiation. In the 5 mW/cm<sup>2</sup> group, the concentration of Ca<sup>2+</sup> and LDH in peripheral serum increased significantly ( $P < 0.01$ ), the wavy arrangement of myocardial fibers, mitochondrial cavitation and swelling were observed 6 and 7 days after irradiation. At 6, 7 and 14 days after irradiation in 10 mW/cm<sup>2</sup> group, the concentration of Ca<sup>2+</sup>, CK and LDH in peripheral serum of rats increased significantly ( $P < 0.01$ ), the heart rate and electrocardiogram P-H decreased significantly ( $P < 0.05$  or 0.01).

**Conclusion:** There is no significant change in rats after 2.5 mW/cm<sup>2</sup> long-term microwave irradiation. 5 mW/cm<sup>2</sup> and 10 mW/cm<sup>2</sup> microwave irradiation can cause damage to cardiac function, structure and ultrastructure in rats, correlated with radiation dose.

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## Screening Methods of Performance Evaluation Indexes for Cardiovascular Disease Prevention and Control

Jing Zhang

### Abstract

**Objective:** To understand the development and change of cardiovascular disease prevention and control performance appraisal index system in recent 5 years, to screen and establish routine work indexes, and to explore new ideas of performance appraisal and management.

**Methods:** The performance index of cardiovascular disease prevention and control was analysed and described.

**Results:** The change trend of the total score and the quantity of each professional index from 2014 to 2018 is not obvious, the total score of some professional indicators increases slightly, and the number of most professional indicators fluctuates. Before 2017, the types of performance indicators are key indicators, and in the past two years, the key indicators have gradually changed into conventional indicators, and the number of specialties with additional indicators has increased year by year. With the increase of conventional indicators, the proportion of off-site assessment has increased significantly. Based on the changes of routine index types, 83 routine working indexes related to cardiovascular disease prevention and control were established by Delphi method.

**Conclusion:** The department of disease prevention and control shall improve the management idea of performance appraisal, reasonably coordinate the health resources and actively carry out routine work.

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## Talent Training Model of Cancer Disease Centre in Affiliated Hospital of Medical College Based on Advanced Medical Technology

Yu Wang

### Abstract

**Objective:** Oncology is a multidisciplinary and multi - specialized clinical discipline. With the shift of the current medical model from a simple "biomedical model" to a more perfect "high-end medical technology model", the establishment of an innovative teaching model for tumour disease talents has become the only way for the development and exploration of affiliated hospitals of medical schools.

**Methods:** This paper intendsto try out the joint training plan of scientific research talents between local medical schools and affiliated hospitals in the affiliated hospital of medical school in the centre of oncology disease.

**Results:** Through the method of interdisciplinary collaborative teaching, supplemented by the form of group discussion, focusing on the medical records, and adopting the open examination method, this paper probes into the improvement measures of the cultivation of applied talents of oncology from many angles.

**Conclusion:** The necessity and feasibility of the new model are analyzed and the suggestions for implementing the plan are put forward.

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## The Role of Music Education in the Treatment of Language Disorders in Autistic Children

Feng Yu<sup>1</sup>, Tongyu Wei<sup>2</sup>

### Abstract

**Objectives:** Language disorder is a typical disorder in autism spectrum disorder. Autistic children have weak language understanding ability and difficult to communicate with people in language, and it is difficult to interact with the outside world. Therefore, music education is proposed to treat language disorders in autistic children.

**Method:** To study the vocabulary, language disorder and pronunciation of autistic children, through the combination of creative music education and melody-based language communication therapy along with social, cognitive, sensory and cognitive ability to intervene accordingly, six autistic male babies aged 4 years and 5 years old were randomly assigned as intervention group and control group. The intervention group was treated with music language for 10 weeks, while the control group was treated with traditional language intervention.

**Results:** The number of vocabulary, imitation pronunciation and independent pronunciation in the music intervention group was higher than that in the control group, and there was significant difference between the two groups. Before and after the experiment, the social ability and language ability of the subjects in the music intervention group were improved to a certain extent, and there were significant differences. Compared with the previous situation, the improvement of the abilities of the children in the control group was not obvious, and there was no significant difference.

**Conclusion:** Music education has a positive effect on the treatment of vocabulary, language disorder and pronunciation, and also has a positive effect on the treatment of other abilities other than speech ability.

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## The Effect of English Reading on the Abnormal Speech Processing of Stuttering Patients

Juanyin Liu, Lina Wang, Ping Yin

### Abstract

**Objective:** Continuous sexual stuttering is a kind of speech fluency disorder from childhood to adult, the pathogenesis of which is not clear so far. The purpose of this paper is to study the remission effect of English reading on abnormal speech processing in patients with Stutter, and to provide some therapeutic basis for patients with stuttering.

**Methods:** Eighty patients with stuttering were randomly divided into two groups, 40 in each group. The patients in the control group were given daily study and life. The patients in the experimental group were given certain English reading and listening to English reading every day for one month. The nervous activities in the auditory and motor areas of the subcortical centre of the patients with stuttering were tested.

**Results:** Auditory brain stem may be the defective part of auditory centre function in stuttering patients. English reading has a certain effect on its nerve centre and can improve the stuttering phenomenon to a certain extent.

**Conclusion:** The research on the phenomenon of stuttering needs to be further studied in order to provide theoretical guidance for the clinical practice of stuttering correction and to promote the study of the universal psychological mechanism of speech processing.

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## The Effect of Ecological Environment Monitoring on Disease Prevention of Respiratory Tract Infection

Jing Cai

### Abstract

**Objective:** China attaches great importance to environmental problems, and in practical research, it is also found that the improvement of the environment plays a certain role in disease prevention. This paper mainly studies the effect of eco-environmental monitoring on the prevention of respiratory tract infection.

**Methods:** The infection incidence of 2000 patients with respiratory tract infection in our hospital from January to December 2018, were investigated, the related risk factors were analysed, and the prevention and control measures were made.

**Results:** Among the 2000 patients, 1316 had respiratory tract infection due to environmental problems, and the infection rate was 65.8%. A total of 167 strains of pathogenic bacteria were cultured, of which 132 (79.04%) strains were gram-negative bacteria, 23 (13.77%) strains were gram-positive bacteria and 12 (7.19%) strains were fungi. Univariate analysis showed that age, smoking and activity time were closely related to the incidence of respiratory tract infection caused by environmental pollution ( $p < 0.05$ ). Multivariate logistic regression analysis showed that young age and long active time were independent risk factors of respiratory tract infection caused by environmental pollution ( $p < 0.05$ ).

**Conclusion:** Due to the high probability of respiratory tract infection caused by environmental pollution and many risk factors, ecological environment detection and intervention should be carried out according to the related factors in order to prevent the occurrence of infection.

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## The Influence of Talus Injury on the Alertness of Skiers

Xilin Liu

### Abstract

**Objective:** The main purpose of this paper is to explore the effect of talus injury on the alertness of skiers through comparative experiments, so as to provide theoretical basis for skiers' special speed sensitivity training.

**Methods:** Sixteen skiers were divided into two groups: talus injury compound training group (n = 8PG) and talus non-injury control group (n = 8PG; CG). Using Smart speed segmented timing system and other testing tools, three indexes of explosive force of lower limbs in different directions before and after the experiment were measured: pre-standing long jump (FSJ), left standing long jump (LSJ), right standing long jump (RSJ). Short distance speed index 3: 5 m sprint (5R), 10m sprint (10R), 20 m sprint (20R).

**Results:** In the test of explosive force of lower extremities in different directions after the experiment, there were significant differences between the PG group and the CG group ( $P < 0.05$ ). The FSJ in the PG group was significantly higher than that in the PG group ( $P < 0.05$ ). The increase of FSJ and LSJ was more significant ( $P < 0.01$ ). In the short distance speed test after the experiment, there were significant differences between the PG group and the CG group ( $P < 0.05$ ). In the PG group, the 5R and 10R increased significantly after the experiment ( $P < 0.01$ ).

**Conclusion:** Talus injury will affect the alertness of skiers, but this effect will be reduced with regular rehabilitation treatment.

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## The Prevention and Control of Dengue Fever Infection Caused by Tourism Activities in Inner Mongolia

Lijie Zhang

### Abstract

**Objectives:** In order to prevent and immediately control the spread of dengue fever caused by tourists coming to Inner Mongolia, the local cases of dengue fever in Inner Mongolia were investigated.

**Methods:** One hundred patients diagnosed with dengue fever were selected to analyze the source, transmission route, population susceptibility, immune function and the epidemic characteristics of dengue infection.

**Results:** The peak period of the disease was from July to October. Of the 50 cases included, most were caused by overseas visitors. The main sources of import were Southeast Asia (29 cases), South Asia (12 cases) and other regions (9 cases). The peak incidence of imported cases in Inner Mongolia was similar to that of local cases. The age of the patients was between 7-76 years, without obvious occupational characteristics. Dengue-1 virus was isolated and confirmed as an imported cause.

**Conclusion:** This study provides a warning for focussing on strengthening the detection of border port personnel, timely detection and reporting of visiting cases, to prevent and control the spread of dengue fever in Inner Mongolia.

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## The Effect of Different Limb Training Intensity on Functional Recovery of Patients with Bone and Joint Diseases

Shangwei Nie

### Abstract

**Objective:** To analyse the effect of different limb training intensity on the functional recovery of patients with bone and joint diseases.

**Methods:** Thirty patients with bone and joint diseases treated in hospital were randomly divided into three groups with 10 patients in each group. Functional recovery was trained from four aspects: circumference, explosive power, maximum strength and muscle endurance. The limbs were trained three times a week for 8 weeks. The first group trained 30 min each time and the second group trained for 1 hour each time, the third group was trained for 1.5 hours each time. Finally, the changes of limb strength and quality were tested..

**Results:** (1) In the first group, the explosive power of limbs increased by 3.93%-4.03%, the maximum strength increased by 5.15%-5.933%, and the muscle endurance increased by 8.25%-9.26%. (2) The explosive power of the second group increased by 4.82% to 5.13%, the maximum strength increased by 6.22% to 7.84%, and the muscle endurance increased by 8.31% to 9.16%. (3) The explosive power of the third group increased by 4.94%-5.88%, the maximum strength increased by 6.32%-8.03%, and muscle endurance increased by 8.99%-9.97%. (4) The range of functional recovery in patients with bone and joint disease increased with the increase of limb training intensity.

**Conclusions:** Different limb training intensity has a certain effect on the functional recovery of patients with bone and joint diseases.

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## The Relationship between the Temperature Control Effectiveness of the Thermal Conduction of Agricultural Laser and the Condition of the Worker's Arthritis

Na Wang<sup>1</sup>, Yonghong Liu<sup>2</sup>

### Abstract

**Objective:** Knee osteoarthritis is mainly divided into wind cold and damp type or damp heat type, respectively, because of the wind cold invasion or the hot and humid place of long-lived inflammation. Due to the poor effect of temperature control in agricultural environment, the incidence of knee osteoarthritis (KOA) in related workers increased rapidly. In order to reduce the incidence of KOA in agricultural workers, the temperature control method of agricultural laser heat conduction was put forward, and the relationship between KOA and workers was discussed.

**Methods:** Through the DPL laser heat conduction temperature control module, the environmental monitoring information in the agricultural greenhouse is collected, and the status information of the control equipment and the agricultural data information collected by the terminal node are analyzed, the intelligent temperature control of agricultural greenhouse is realized by terminal control node, and the incidence of arthritis of workers in this environment is tested, compared with the status of relevant operators who did not use the system.

**Results:** The designed system has high static and dynamic temperature control accuracy, and the incidence or recurrence rate of workers in the environment of using the system is significantly lower than that of workers in the environment of no control.

**Conclusion:** It can provide reference for further study on KOA prevention of agricultural workers.

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## The Alleviating Effect of Painting Therapy on the Negative Psychology of Autistic Children

Yingtong Ai,<sup>1,2</sup> Jianke Yang,<sup>3</sup> Liwen Zhang,<sup>1</sup> Xiaobin Xu<sup>3</sup>

### Abstract

**Objective:** To explore the effect of painting therapy on autistic children. For the treatment of autistic children, the current foreign popular painting psychotherapy method is used, and the interest of children's painting is used to effectively guide the various psychological problems of autistic children, so that their negative psychology can be alleviated.

**Methods:** From Kunming public primary school, 80 autistic children were randomly selected, and then randomly divided into experimental group and control group, 40 in each group. Children in the experimental group were treated with painting therapy intervention. Before and after the intervention, children were assessed with autism Assessment Scale (cars) and autism treatment assessment scale (ATEC).

**Results:** From Kunming public primary school, 80 autistic children were randomly selected, and then randomly divided into experimental group and control group, 40 in each group. Children in the experimental group were treated with painting therapy intervention. Before and after the intervention, children were assessed with autism Assessment Scale (cars) and autism treatment assessment scale (ATEC).

**Conclusion:** Painting psychotherapy has a significant effect on improving the level of psychological rehabilitation of autistic children, which is conducive to the improvement of symptoms of autistic children.

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## The Influence of Dostoevsky's Characterization on the Alleviation of Adolescent Mental Illness

Shan Kuang

### Abstract

**Purpose:** Dostoevsky has created a series of characters with madness in his novels, which is not only related to the author's epilepsy, but also the result of his unique literary thinking. Therefore, it is of great significance to explore the influence of Dostoevsky's characterization on the alleviation of adolescent mental illness.

**Methods:** By using symptom checklist and adolescent life event scale, the mental health of 400 junior high school students in two middle schools in Shanghai was investigated and analysed. The experimental group read the work and explained the characters to them. From the special experience of paranoia, dual personality and "great wisdom is like a fool", they explained the madness and morbid of the characters in Dostoevsky's novels. There was no intervention in the control group.

**Results:** In the SCL-90, the compulsive symptoms, interpersonal sensitivity, paranoia, hostility, anxiety and depression in the experimental group were relieved to some extent, which was significantly different from those in the control group and before the disease. There were significant differences in punishment factors, loss factors and health adaptation factors.

**Conclusion:** To understand Dostoevsky's characterization plays an important role in alleviating the mental illness of teenagers, and to encourage teenagers with mental illness to read such books.

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## Design of Image Diagnosis System for Breast Diseases Based on Convolutional Recurrent Network

Jianwei Li

### Abstract

**Objective:** Develop the intelligent diagnosis system of breast disease, improve the recognition rate of breast disease image diagnosis and the work efficiency of doctors, and improve the image diagnosis level of grass-roots medical institutions.

**Methods:** For many years, medical images related to breast diseases have been collected. Through data annotation, image pre-processing, data enhancement, in-depth learning and other steps, data sets have been unbalanced and enhanced, extract the image features of breast diseases, classify and recognize the image features, the image intelligent diagnosis system of breast diseases based on convolution recurrent network is established to assist doctors in intelligent diagnosis.

**Results:** The image of the intelligent diagnosis system of breast disease image based on convolutional recurrent network is clearer and more intuitive. 100% of the malignant lesions were found, and the abnormal vessels beside the lesions were well displayed.

**Conclusion:** This system is conducive to the grass-roots doctors to improve the accuracy of breast disease diagnosis, has important value for the image diagnosis of breast disease, and reduces the risk of death of breast disease patients.

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## The Effect of Aerobics High-altitude Landing Training on the Response to the Hyperplasia of the Knee

Li Zhang

### Abstract

**Objective:** Reduce the unnecessary sports injury in aerobics teaching and training, make the teaching and training of aerobics more scientific, and improve the knee joint injury of athletes in aerobics training.

**Methods:** Through investigation and interview, literature and statistics, this paper makes statistical analysis on the causes of knee joint hyperplasia of the athletes in the aerobics high altitude landing training in three colleges and universities. Starting from the anatomical structure and kinematic characteristics of the knee joint, it focuses on the analysis of the injury factors, and puts forward the problems that should be paid attention to in the aerobics high altitude landing training. At the same time, according to the problems summarized, the intervention experiment was carried out. 193 students from three universities were randomly divided into the intervention group (98) and the control group (95). The intervention group received the above-mentioned precautions based on the traditional training, while the control group only received the traditional training.

**Results:** The number of Aerobics injuries in intervention group was significantly lower than that in control group ( $P < 0.05$ ); There was no significant difference between the intervention group and the control group ( $P > 0.05$ ).

**Conclusion:** Prevention and intervention measures can effectively reduce the incidence of sports injuries of students and prevent the occurrence of injury accidents of Aerobics athletes, but the effect of relieving knee hyperplasia is not obvious.

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## The Correlation Analysis between Network Economic Risk and Depressed Patients with Aggravation

Jie Zhan

### Abstract

**Objective:** With the development of social economy, the pace of life is accelerating, more and more people have depressive symptoms. Depressive disorder can have a great impact on patients' quality of life and physical health. There are many factors affecting depressive symptoms, and the economic status is one of the factors that worsens the condition of depressed patients.

**Methods:** To this end, based on the "China Family Tracking Survey" CFPS data, this paper explores the relationship between the economic situation changes brought by network economic risks and the condition of patients with depression, and introduces Wagstaff's concentration index and concentration curve method to describe depression inequality and society.

**Results:** The experimental results show that family property is the more important cause of depression inequality compared with education and income. The change of household net assets caused by network economic risk is the influential factor of the worsening of patients with depression. Education for female groups and rural household registration, the group depression is more inhibited.

**Conclusion:** Through the research in this paper, the relationship between economic status and the condition of patients with depression can be displayed more intuitively and comprehensively, which helps people to strengthen the awareness of prevention and psychological adjustment of depression, and to treat depression. It is hoped that this study can contribute to the treatment and prevention of depression.

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## Stability Analysis of Breast Cancer Gene Regulation Network Based on Boolean Network Model

Yaolin Huang, Qiang Wei

### Abstract

**Objective:** Boolean network technology was used to construct and analyze breast cancer gene regulation network.

**Methods:** Known breast cancer related genes were collected and their regulatory relationships were visualized, the network through topological structure was analysed, and Boolean rules made according to the regulatory relationships between genes. On the basis of previous studies, the paper used mathematical analysis method to establish a Boolean control network model. The initial state of the network evolved around the method of Boolean rules, and the main attractors obtained corresponded to the health state. Introducing the mathematical tool of semi tensor product of matrix, we analyse the attractor control of Boolean gene control network, knock out the key genes which have great influence on the output of the network, simulate gene mutation, and analyse the attractor change of the new network.

**Results:** After the key gene had been knocked out, the attractor of the network had different degrees of development to the direction of concertation.

**Conclusion:** Boolean network model can effectively simulate the dynamic gene regulation process of breast cancer and provide a reference optimal control gene node for the treatment of breast cancer.

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## The Prevention and Cure Effect of Artificial Intelligence Weather Forecast on Respiratory Tract Diseases

Kun Yang<sup>1</sup>, Yifeng Cui<sup>2</sup>

### Abstract

**Objective:** To explore the influence of meteorological conditions on children with upper respiratory tract diseases, predict the number of medical visits, and provide a new method for medical meteorological services.

**Methods:** Design a weather forecast system based on artificial intelligence, input historical weather data, use the most intelligent neural network algorithm to enable the system to conduct in-depth learning and self-evolution.

**Results:** (1) The software simulated and predicted the weather conditions, and found that the data obtained by the designed artificial intelligence weather forecast system was highly consistent with the actual data. (2) It was found that the number of children patients with upper respiratory tract disease had certain fluctuation and periodicity. (3) Single factor analysis showed that meteorological conditions had a significant impact on the occurrence of children's upper respiratory diseases. The influence of meteorological factors on the incidence of upper respiratory tract infection has a certain lag, and most of them are 1-3 days.

**Conclusion:** The designed artificial intelligence weather forecast system has a high prediction accuracy, and the weather conditions have a strong correlation with respiratory diseases. Therefore, the use of artificial intelligence weather forecast can provide a basis for the prevention and treatment of respiratory diseases.

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## The Key Elements of Tourism Scenic Spot Construction for Depressed Groups

Aiting Zhao,<sup>1</sup> Xiaoyu Zhang,<sup>1</sup> Jing Guo<sup>2</sup>

### Abstract

**Objective:** Tourism has a certain rehabilitation effect on depressed patients, but at present, there are few scenic spots designed for depression groups.

**Methods:** The relationship between tourism and depression was analysed by literature survey and physiological analysis. From the perspective of depression patients' concerns, 30 control index systems are proposed, and the control methods of the main indexes are studied in depth to guide the practice of scenic spot control.

**Results:** Tourism project planning mainly relies on tourism resources, and the land types are divided into six categories: ecological protection land, scenic tourism land, tourism facilities land, etc. The boundary division of land use is based on the functional division, taking into account the terrain, vegetation and other factors.

**Conclusion:** The targeted design of the scenic spot is more beneficial to the rehabilitation of the patients with depression.

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## Clinical Analysis of Diaphragm Rehabilitation Instrument in the Treatment of Elderly Patients with Emphysema

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### Abstract

**Objective:** To investigate the effect of diaphragmatic rehabilitation in the treatment of senile emphysema.

**Methods:** Eighty elderly patients with emphysema admitted to the respiratory department of an affiliated hospital from May 2018 to May 2019 were randomly divided into control group and observation group with 40 cases in each group. The control group was given routine health education and treatment, the observation group was treated with body diaphragm rehabilitation instrument on the basis of the control group, and the two groups were given 15 days as a course of treatment.

**Results:** Before treatment, there was no significant difference in cat score, Barthel score and symptom score between the two groups ( $P > 0.05$ ); after treatment, the cat score and symptom score of the observation group were lower than that of the control group, and Barthel score was higher than that of the control group ( $P < 0.05$ ). There was no significant difference in lung function, blood gas analysis index and 6MWD between the two groups before treatment ( $P > 0.05$ ); after treatment, FVC, FEV<sub>1</sub>, PaO<sub>2</sub> and 6MWD in the observation group were higher than those in the control group, and PaCO<sub>2</sub> was lower than those in the control group ( $P < 0.05$ ).

**Conclusion:** The diaphragmatic rehabilitation instrument can effectively improve the pulmonary ventilation function and the exercise function of the elderly patients with emphysema, and improve the daily living activity and the quality of life.

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## Modelling and Analysis of the Influence of Emotional Changes on the Prevalence Probability of Social Phobia in College Students

Jie Peng,<sup>1</sup> Yang Shen,<sup>2</sup> Yan Liu<sup>3</sup>

### Abstract

**Objective:** To explore the effect of emotional changes on the prevalence of social phobia in college students, analyse the correlation between emotional changes and social fear, and evaluate the therapeutic effect of group interpersonal psychotherapy on emotional self-efficacy.

**Methods:** 120 patients were selected for psychological outpatient service and psychological consultation due to "social fear" from January to August 2018. After 12 weeks, emotion regulation self-efficacy scale, social avoidance scale and distress scale were used to evaluate the probability of different results.

**Results:** The scores of positive self-efficacy, depression self-efficacy and anger self-efficacy were  $(13.91 \pm 3.2)$ ,  $9.80 \pm 3.25$  and  $9.77 \pm 3.96$  respectively. Positive self-efficacy was negatively correlated with social avoidance and distress ( $P < 0.05$ ), and negatively correlated with social anxiety ( $P < 0.05$ ). There was a significant negative correlation between self-efficacy of management depression and total scores of social avoidance, distress, and social anxiety ( $P < 0.05$ ).

**Conclusion:** The self-efficacy of emotion regulation is related to social phobia. The self-efficacy of emotion regulation is significantly improved after group interpersonal psychotherapy, which shows that the change of emotion is easy to improve the probability of students' social phobia.

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## The Evaluation Method of Translation Quality of English Names for Respiratory Diseases

Chunhua Chen

### Abstract

**Objective:** Comparing the Chinese and English names of respiratory diseases, can help in determining the disorder, which provides convenience for clinical medical staff and patients to quickly come to a provisional diagnosis.. Therefore, the translation of English names of respiratory diseases into the Chinese language is very important. This paper studies a translation quality evaluation method.

**Methods:** Access is used to build a database of Chinese and English names of respiratory diseases. According to the needs of disease sorting, disease classification, disease name, etc., an evaluation method of English name translation was constructed. The evaluation method is based on three variables: field, tenor and mode, the accuracy of the translation of English names of respiratory diseases is judged by analysing the text function of Chinese and translated versions, and the translation quality is evaluated according to the accuracy calculation results.

**Results:** The database of Chinese and English names of respiratory diseases has been established successfully, and the software of disease names has been developed.

**Conclusion:** It is possible for clinicians and patients to find out the Chinese and English names of the disease quickly and accurately.

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## The Influence of Architectural Art Atlas on Relieving the Symptoms of Autistic Patients

Mingchan Gong

### Abstract

**Objective:** To relieve the symptoms, educate and rehabilitate autistic patients effectively is the focus of the study. For this purpose, the effect of architectural art atlas on the symptoms of patients with autism is put forward, so as to achieve the purpose of active communication.

**Methods:** Single variable test method was used. Taking a 4-year-old preschool autistic child as the research object, the picture exchange and communication system of architectural art, was used as an intervention for practical teaching. This guided them to express their basic life needs through picture communication, promote the ability of oral expression and solve the difficult problem of communication.

**Results:** The correct learning rate of the autistic children is more than 80%, in a short time so that this technique of picture communication is very suitable and advantageous for the communication system for autistic vision learning.

**Conclusion:** The school and parents can communicate and train and improve on the basis of this study and provide reference for subsequent research directions.

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## The Effect of Mental Health Education on Alleviating the Anxiety and Depression Symptoms of Digestive System Diseases among College Students

Yanmei Tian,<sup>1</sup> Yuqin Zhao<sup>2</sup>

### Abstract

**Objective:** The effect of mental health education on alleviating anxiety and depression influencing digestive system diseases of college students is put forward by mental health intervention.

**Methods:** Taking the class as the unit, 300 college students with digestive system diseases were selected by random sampling as the research subjects. According to the school number, 151 cases in the control group and 149 cases in the study group were selected. The general education of the control group and the study group carried out the mental health education on the basis of the regular education, and used the anxiety self-rating scale and the self-rating scale of the depression as the evaluation index.

**Results:** Compared with before mental health education, the results of self-assessment of anxiety and self-assessment of depression in the two groups were reduced to some extent, and the results of the study group were significantly lower than those of the control group; After mental health education, the rate of no anxiety and no depression in the test results of anxiety and depression in the study group was significantly higher than that in the control group, and the rate of anxiety and depression above mild and moderate level was significantly lower than that in the control group.

**Conclusion:** Mental health education alleviates the anxiety and depression of college students and obviously improves their psychological state.

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## The Effect of Mental Health Education on the Alleviation of Depressive Neurosis in College Students

Guangjing He, Chunhui Liu

### Abstract

**Objective:** To evaluate sleep quality and stress in patients with dry eye disease and their comparison with normal individuals (students of the University of Faisalabad) not having dry eye.

**Methods:** 120 college students with depressive neurosis were randomly divided into control group and experimental group, 60 cases in each group. On the basis of general education, the experimental group adopted "one-to-one" and group language education during their hospitalization, the content of education focuses on disease-related knowledge and mental health knowledge, attaches importance to the participation of family members, so that patients can correctly understand their own diseases, master relevant knowledge and self-adjustment.

**Methods:** The control group only received general education. The related scale of MMPI and the self-made psychological rehabilitation factor scale were used for psychological analysis and influencing factor analysis.

**Results:** The treatment effect of the experimental group was significantly higher than that of the control group, and the number of relapses and the degree of disease were significantly reduced.

**Conclusion:** It is very important to strengthen the mental health education of college students with depressive neurosis to prevent the recurrence of the disease.

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## Emergency Treatment of Traumatic Arthritis among Long-term Basketball Trainers

Ping Wang

### Abstract

**Objective:** Traumatic arthritis is a common secondary osteoarthropathy in orthopaedics. For long-term basketball training personnel, they are very vulnerable to the trauma of arthritis. Therefore, the emergency treatment of traumatic arthritis in long-term basketball training personnel is discussed in order to achieve the purpose of immediate treatment.

**Methods:** For traumatic arthritis, because of the damage of articular cartilage and subchondral bone, surgical treatment is the main treatment and non-surgical treatment is the auxiliary. However, for basketball trainers, if they have recurrent traumatic arthritis, they need emergency treatment because of the conditions in the field. This paper puts forward the emergency treatment of traumatic arthritis by external washing with traditional Chinese medicine. 80 patients with traumatic arthritis of foot and ankle were randomly divided into observation group and control group, 40 cases in each group. The observation group was treated with the emergency method of external washing with Chinese medicine, and the control group was treated conservatively.

**Results:** The difference between the two groups was statistically significant ( $P < 0.05$ ). The recovery of the patients in the observation group was better than that in the control group ( $P < 0.05$ ).

**Conclusion:** The emergency treatment of traumatic arthritis for long-term basketball trainers can improve the excellent rate of treatment to a certain extent, with remarkable effect.

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## Treatment and Prevention of Humeral Epicondylitis during Long-term Tennis Training

Dali Wang

### Abstract

**Objective:** The disease of lateral epicondylitis of Humerus is mainly related to tennis players' frequent swing and hitting. If the prevention and treatment are not corrected timely, it will not only seriously affect the athletes' sports life, but also affect their daily life in the future. In order to reduce the attack of epicondylitis in long-term tennis training and deal with the disease in time, the treatment and prevention methods were put forward.

**Methods:** Thirty tennis players with epicondylitis were selected as the subjects, through long-term clinical observation, this paper analyses and summarizes the aetiology and pathology of tennis players' epicondylitis, and points out the common symptoms, signs and diagnostic points of tennis players' epicondylitis.

**Results:** Treatment: in the early stage, the patient's limbs can be relieved by braking rest, physical therapy, local sealing and massage. Massage therapy is to relieve the spasm of the extensor muscle of forearm by pushing and kneading, which has the effect of relieving pain. For the long-term patients, we can consider to remove the attachment point of the extensor of the forearm in the lateral epicondyle of the Humerus or extend the tendon of the extensor carpi radialis brevis to relieve the pain. Prevention: swing correctly and avoid excessive joint movement.

**Conclusion:** The treatment and prevention of tennis player's epicondylitis were put forward and demonstrated from many aspects.

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## Investigation and Analysis on the Probability of Shoulder Periarthritis Aggravation in Modern Sports Dance

Xia Li

### Abstract

**Objective:** The influence of improper training of modern sports dance movements on the aggravation probability of periarthritis of lower shoulder was studied.

**Methods:** Through the methods of literature, questionnaire, expert interview and mathematical statistics, this paper analysed the shoulder injury in modern sports dance movement training. Based on the anatomical structure and biomechanical characteristics of shoulder joint, the mechanical causes of shoulder joint injury in upper limb swing action were analysed and discussed.

**Results:** It was found that the main causes of shoulder injury were poor flexion and pronation of upper arm, improper timing and inadequate shoulder rotation, in modern sports dance movement training, upper limb injury is more common, and the proportion of shoulder injury is also higher, in the modern sports dance movement training, the shoulder injury is closely related to the shoulder anatomical structure, the modern sports dance movement training technique and the training method.

**Conclusion:** This study puts forward a reasonable method to prevent shoulder injury in modern sports dance movement training, which provides a reference for avoiding shoulder periarthritis in modern sports dance movement training.

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## Abstract

**The Guidance and Analysis of the Instructors' Ideological and Political Education in the Cross-cultural Exchange Practice to the Students with Mild Depression**

Na Zhang, Hong Xiao

**Abstract**

**Objective:** According to the psychological characteristics of mild depression students in cross-cultural communication practice, this paper probes into the tutoring effect of counsellors' ideological and political education on them.

**Methods:** 8000 students from 6 middle schools were investigated in January 2018, and 1521 students with depression were found to be depressed. Health education was carried out from June to August 2018, and their clinical data were reviewed and analysed.

**Results:** 592 students with depression received health education from June to August with necessary medication, 1175 of them recovered, and the degree of depressive symptoms of others decreased significantly ( $P < 0.01$ ).

**Conclusion:** According to the special psychological and physiological characteristics of middle school students, carrying out corresponding health education and guidance is of great significance to the treatment of depression of middle school students, which can improve the enthusiasm and psychological immunity of students with depression, and promote mental and physical health.

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## The Influence of English Education on the Communication Ability of Autism Patients Based on the Theory of ESP

Nan Jiang

### Abstract

**Objective:** The main clinical characteristics of autistic patients are social communication disorder, speech and non-verbal communication defects, narrow interest and rigid behaviour. In order to explore ways to improve the symptoms of autistic patients, the paper proposed the influence of English education based on ESP theory on the communication ability of autistic patients.

**Methods:** 79 autistic patients who were treated in psychiatric department of a hospital from January 2018 to January 2019 were randomly divided into control group and nursing group, 39 and 40 cases respectively, the patients in the control group received routine treatment and nursing, while the patients in the nursing group received English education on the basis of routine care and treatment. The ESP theory was used to guide the patients to actively communicate and communicate with each other, so as to increase the interest of the patients. The clinical status of the two groups was compared after 6 months of intervention.

**Results:** The statistical data showed that the clinical status of the patients in the nursing group was significantly better than that in the control group ( $P < 0.05$ ).

**Conclusion:** The combination of English education and treatment in the clinical treatment of autistic patients can significantly improve the clinical situation of the patients, which has significant clinical significance and is worth promoting in clinical work.

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## Therapeutic Effect of Psychotherapy on Patients with Stress Gastric Ulcer

Yue Ma,<sup>1</sup> Cunde Liu,<sup>2</sup> Dongyang Chen<sup>3</sup>

### Abstract

**Objective:** To explore the effect of psychotherapy on the treatment of stress-induced gastric ulcer.

**Methods:** Ninety patients with stress gastric ulcer admitted to a hospital from January 2018 to June 2019 were randomly divided into the control group and the intervention group. The control group was treated simply by routine treatment, and the intervention group was given psychological intervention on the basis of routine treatment. The scores of anxiety and depression before and after treatment and the length of stay were compared between the two groups.

**Results:** After treatment, the scores of anxiety and depression in the intervention group were significantly lower than those in the control group ( $P < 0.05$ ); the length of stay in the intervention group was significantly lower than that in the control group ( $P < 0.05$ ). The therapeutic effect of the intervention group was significantly higher than that of the control group ( $P < 0.05$ ).

**Conclusion:** Psychological nursing can effectively improve the mood and attitude of patients with stress gastric ulcer, improve the treatment efficiency and shorten the length of stay.

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## Internet Crime Regulation Method for Patients with Severe Mental Illness

Feng Zhao

### Abstract

**Objective:** Compared with the crimes of traditional patients with severe mental illness, cybercrime with mental illness in the Internet environment have undergone major changes in organizational form and behaviour type.

**Methods:** In terms of organizational form, the pyramidal hierarchical structure of the terrorist organization has changed to the network node-like structure, and the individualized severe mental illness patients such as “single-wolf” have risen in crime; in terms of behavioural types, the tool-type network has severe crimes of mental illness patients and Target type cybercriminal crimes in patients with severe mental illness are the two main types of crimes in patients with severe schizophrenia. With the emergence of new criminal characteristics of patients with severe mental illness, the United Kingdom, Germany, Russia and other countries have promulgated and controlled the crimes of patients with severe schizophrenia by enacting new laws or amending criminal laws, and punishing patients with severe mental illness in the network. There have been many fruitful legislative experiences in crime.

**Results:** The adoption of the Criminal Law Amendment (IX) and the Anti-Terrorism Law provides a more comprehensive and solid legal guarantee for combating crimes of patients with severe mental illness, and has filled the past to regulate the crimes of patients with severe mental illness.

**Conclusion:** Many blanks. However, China's criminal law still has insufficient regulations on crimes committed by patients with severe mental illness, and needs further improvement.

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## Three-Dimensional Modeling of Root Tip of Pulpitis Based on Tomographic Image

Xiujuan Wu, Qintao Li, Yue Yang

### Abstract

**Objective:** The three-dimensional model of intact pulpitis root tip provides the necessary auxiliary information for the orthodontist to diagnose the malocclusion and plan the treatment plan.

**Methods:** At present, the three-dimensional model of pulpitis root tip is mainly obtained by segmentation and reconstruction of computed tomography (CT) images. However, the model reconstructed by CT image is less accurate and is not suitable for the auxiliary design of the bracket less invisible appliance; on the other hand, repeated oral CT scan of the patient during different periods of orthodontic treatment can bring radiation damage to the patient.

**Results:** This study proposes a method based on the fusion of oral CT images and laser scanning images to reconstruct the three-dimensional model of pulpitis root tip.

**Conclusion:** The method uses the dental CT image reconstructed root and the laser-scanned image reconstructed crown to establish a complete three-dimensional model of pulpitis root tip, and the crown model of the model is more accurate. At the same time, the method only needs to perform an oral CT scan on the patient before orthodontic treatment, and a laser scan can be performed during the treatment to obtain a complete dentition model of the patient's treatment cycle, thereby reducing the number of CT scans to prevent the patient from Radiation damage.

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## Economic Risk Analysis and Influencing Factors of Rural Chronic Diseases

Zhenyang Guo

### Abstract

**Objective:** To explore the economic burden and economic risks of common chronic diseases in rural residents.

**Methods:** A self-administered questionnaire method was used for 212 patients (156 patients with cardiovascular and cerebrovascular diseases, 56 patients with diabetes). One year's disease economic burden and economic risk were investigated. The multiple regression models were used to investigate the factors affecting the economic risk of the disease.

**Results:** The annual per capita income of patients with cardiovascular and cerebrovascular diseases was 4,352 yuan, and the per capita annual medical expenses was 1,809 yuan. The adjusted RR value was 4.42. The per capita annual income of diabetic patients was 10 508 yuan, the per capita annual medical expenses is 11 472 yuan, and the adjusted RR value is 11.61. The data of these two diseases are combined, and the per capita annual income is 6 010 yuan. The per capita annual medical expenses were 4,361 yuan, and the adjusted RR value was 7.72. Multivariate regression analysis was performed with LnRR as the dependent variable. The hospitalization or non-variable variable was the only statistically significant independent variable with a partial regression coefficient of 1.86,  $P < 0.01$ .

**Conclusion:** The economic burden and risk of chronic disease patients are high, and the economic burden and risk of diabetes patients are much higher than those of patients with cardiovascular and cerebrovascular diseases. Hospitalization is the most important factor.

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## The Effect of Leisure Tourism on Relieving Psychological Stress of Tourists

Yukun You

### Abstract

**Objective:** With the transformation of China's economic system and the improvement of social modernization, the problem of national mental health has become increasingly prominent. At present, there is still a gap between the development of China's mental health care and the growing psychological health care needs of the people.

**Methods:** The relevant theories of the subject analyse the traditional psychological health care technology problems in China, the physical and mental health concerns in traditional leisure tourism, and the physical conditions of leisure tourism mental health care.

**Results:** Finally, the effect of leisure tourism on the psychological stress relief of tourists is analysed, and the leisure tourism pair is proposed.

**Conclusion:** The model of psychological health care for tourists, and puts forward feasible suggestions from the aspects of improving mental health care technology and developing leisure travel mental health tourism products.

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## The Alleviation Effect of Career Planning on College Students' Social Phobia

Shensheng Chen

### Abstract

**Objective:** In order to improve the social fear symptoms of college students through career planning activities, I participated in 8 series of career planning for 36 college students of Luohe Medical College. Before and after counselling, they used the Youth Life Events Scale, Social Support Rating Scale, and Self-evaluation of Depression.

**Methods:** The table, the anxiety self-rating scale, the social avoidance and distress scale and the self-esteem scale were pre-tested and post-tested on the experimental group and the control group, and the scores of the two groups were significantly tested.

**Results:** The study found that the pre-employment planning group and control group members were significantly higher than the control group in social support assessment scores, social avoidance and pain, depression self-evaluation and self-esteem scores, and the experimental group was in the social avoidance and distress scale before and after the experiment.

The difference in scores was statistically significant ( $P < 0.01$ ); the difference in scores between the experimental group and the control group after occupational planning on the above scales was not statistically significant.

**Conclusion:** Career planning can effectively improve the social fear of college students, which is conducive to the improvement of their mental health.

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## Effect of Th22 Type Cytokine Secreting Cell Ratio on Clinical Diagnosis and Treatment of Tuberculosis

Lin Li,<sup>1</sup> Shushen Zheng,<sup>1</sup> Ya Chen,<sup>2</sup> Xulei Dai<sup>3</sup>

### Abstract

**Objective:** Traumatic arthritis is a common secondary osteoarthropathy in orthopaedics. For long-term basketball training personnel, they are very vulnerable to the trauma of arthritis. Therefore, the emergency treatment of traumatic arthritis in long-term basketball training personnel is discussed in order to achieve the purpose of immediate treatment.

**Methods:** For traumatic arthritis, because of the damage of articular cartilage and subchondral bone, surgical treatment is the main treatment and non-surgical treatment is the auxiliary. However, for basketball trainers, if they have recurrent traumatic arthritis, they need emergency treatment because of the conditions in the field. This paper puts forward the emergency treatment of traumatic arthritis by external washing with traditional Chinese medicine. 80 patients with traumatic arthritis of foot and ankle were randomly divided into observation group and control group, 40 cases in each group. The observation group was treated with the emergency method of external washing with Chinese medicine, and the control group was treated conservatively.

**Results:** The difference between the two groups was statistically significant ( $P < 0.05$ ). The recovery of the patients in the observation group was better than that in the control group ( $P < 0.05$ ).

**Conclusion:** The emergency treatment of traumatic arthritis for long-term basketball trainers can improve the excellent rate of treatment to a certain extent, with remarkable effect.

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## Application Study of Monitoring Patients with Acute Myocardial Infarction Based on Wireless Communication

Ziyu Pan,<sup>1</sup> Jie Yang,<sup>1</sup> Nan Guo<sup>2</sup>

### Abstract

**Objective:** To investigate the application value and nursing effect of wireless communication monitoring in patients with acute myocardial infarction.

**Methods:** A total of 120 patients with acute myocardial infarction who were admitted from August 2016 to August 2017 were enrolled. The patients were randomly divided into the control group and the observation group according to the hospital ID number. Reperfusion therapy, routine nursing and analgesia were performed in both groups. The control group was monitored by a conventional ECG monitor. The observation group was monitored by wireless communication monitor and cardiopulmonary resuscitation. The incidence of cardiac arrest, the frequency of ventricular fibrillation and the rate of cardiopulmonary resuscitation were compared between the two groups.

**Results:** There was no significant difference in the frequency of cardiac arrest and ventricular fibrillation between the two groups ( $P>0.05$ ). The cardiopulmonary resuscitation rate in the observation group was significantly higher than that in the control group ( $P<0.05$ ).

**Conclusion:** Wireless communication monitor can improve the cardiopulmonary resuscitation rate of patients with acute myocardial infarction, thus improving their quality of life.

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## Life Satisfaction and Influencing Factors of Family Caregivers in Cancer Patients

Xiaolin Xin, Qingjian Yang, Lei Zhang

### Abstract

**Objective:** To investigate the burden and its influencing factors of the main caregivers of cancer patients.

**Methods:** A questionnaire was used to investigate the primary caregivers of 102 cancer patients.

**Results:** Family caregivers of cancer patients have a greater physical, psychological, and social burden which is the heaviest. Compared with the norm, caregivers use more negative coping styles, and this negative coping is positively related to the caregiver burden.

In addition, the caregiver burden is also related to the patient's activity index, self-care, subjective quality of life, dialysis time, family care index, and family financial burden.

**Conclusion:** The Health Care Professionals should pay attention to the burden of family caregivers of cancer patients, guide them to adopt positive coping styles, strengthen their family support system, and actively encourage patients to take care of themselves to reduce the burden of caregivers.

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## The Role of Social Support in the Coping Style and Hope Level of Patients with Colorectal Cancer

Xiaolin Xin, Qingjian Yang, Lei Zhang

### Abstract

**Objective:** To explore the relationship between the hope level of colo-rectal cancer radiotherapy patients and coping style and social support.

**Methods:** A questionnaire survey was conducted on 240 cancer patients undergoing radiotherapy, including coping style, hope level, social support and general situation questionnaire, and SPSS was used for relevant analysis.

**Results:** The overall score of hope for cancer radiotherapy patients was  $(36.49 \pm 4.25)$  points; the overall face-to-face, optimistic, self-reliant, conservative, and supportive responses were positively correlated, and the emotions, resignation, and escape in the coping style were negative in nature. There was no correlation between the overall response, and the total average was significantly positively correlated with the total social support. Female patients and medical insurance patients had higher levels of hope compared to male patients and self-paying patients.

**Conclusion:** Most patients with cancer radiotherapy have a medium to high level of hope. Gender, medical expenses, social support and some coping styles affects the patient's hope level.

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## The Effect of Regular Exercise on Relieving the Body Coordination Ability of Patients with Parkinson's Disease

Xinguo Yuan

### Abstract

**Objective:** Traumatic arthritis is a common secondary osteoarthropathy in orthopaedics. For long-term basketball training personnel, they are very vulnerable to the trauma of arthritis. Therefore, the emergency treatment of traumatic arthritis in long-term basketball training personnel is discussed in order to achieve the purpose of immediate treatment.

**Methods:** For traumatic arthritis, because of the damage of articular cartilage and subchondral bone, surgical treatment is the main treatment and non-surgical treatment is the auxiliary. However, for basketball trainers, if they have recurrent traumatic arthritis, they need emergency treatment because of the conditions in the field. This paper puts forward the emergency treatment of traumatic arthritis by external washing with traditional Chinese medicine. 80 patients with traumatic arthritis of foot and ankle were randomly divided into observation group and control group, 40 cases in each group. The observation group was treated with the emergency method of external washing with Chinese medicine, and the control group was treated conservatively.

**Results:** The difference between the two groups was statistically significant ( $P < 0.05$ ). The recovery of the patients in the observation group was better than that in the control group ( $P < 0.05$ ).

**Conclusion:** The emergency treatment of traumatic arthritis for long-term basketball trainers can improve the excellent rate of treatment to a certain extent, with remarkable effect.

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## Emotional Decompression Model of Depression Patients with Green Ecological Leisure Tourism

Binchao Xu

### Abstract

**Objective:** To observe the effects of colour eco-leisure tourism intervention on neurological function, negative emotion and quality of life in patients with post-stroke depression (PSD) based on emotional decompression model.

**Methods:** A total of 106 patients with PSD admitted to our hospital were enrolled in the study. According to the random number table method, 53 patients were divided into the study group and the control group. The control group used routine intervention and the study group used TTM (Thermal texture maps) colour eco-leisure tourism intervention. Two groups of neurological function, cognitive function, negative emotion and quality of life were observed.

**Results:** After intervention, the NIHSS (National Institute of Health stroke scale) scores of the two groups were significantly lower than those before the intervention ( $P < 0.05$ ). The MMSE (Mini-Mental State Examination) scores of the two groups were significantly higher than those before the intervention ( $P < 0.05$ ); the SAS (Self-Rating Anxiety Scale) and SDS (Self-Rating Depression Scale) scores of the two groups were significantly lower than those before the intervention ( $P < 0.05$ ); the quality of life of the two groups after the intervention The score was significantly higher than that before the intervention ( $P < 0.05$ ).

**Conclusion:** TTM-based colour eco-leisure tourism intervention can effectively improve the neurological function and negative emotions of patients with PSD and improve their quality of life.

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## The Effect of Nursing Training on Alleviating the Symptoms of Alzheimer's Disease in the Elderly

Ping Tang, Lijuan Zhang

### Abstract

**Objective:** To explore the effect of nursing training measures on the quality of life of elderly patients with Alzheimer's disease.

**Methods:** Sixty elderly patients with Alzheimer's disease admitted to the hospital from March 2010 to September 2012 were enrolled in the study. They were randomly divided into two groups. Thirty patients in the control group received routine nursing measures and 30 patients in the intervention group were given specific intervention contents as follows: health education: improve patients' and their families' awareness of the disease, using pictures, slides and TV explanations. Cognitive function training includes: life ability training, guiding patients to eat, fold quilts, dress, etc.; language ability training, guiding patients to recognize and classify fruits; other ability training, including orientation ability training and emotional ability training. The training of the patients lasted six months after which its impact on the life of the two groups was compared.

**Results:** After 6 months of nursing training, the patients in the intervention group had a significantly improved quality of life of the patients compared to the control group ( $P < 0.05$ ).

**Conclusion:** Effective nursing training measures can significantly improve the memory, orientation, attention, resilience and language ability of Alzheimer's patients. This method should be widely promotion and application in clinical priority.

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## Effect of Psychological Adjustment on Negative Emotions in Elderly Patients with Chronic Emphysema

Xin Du

### Abstract

**Objective:** To observe the effect of psychological adjustment on the negative emotions of patients with chronic obstructive emphysema and respiratory failure in elderly patients.

**Methods:** Thirty patients with chronic obstructive pulmonary emphysema and respiratory failure admitted to our hospital were enrolled in the study. The study period ranged from January 2017 to February 2018. According to the computer algorithm, 15 cases were randomly divided into the control group and the nursing group. The control group used routine nursing and the nursing group applied psychological adjustment method. The psychological emotional status and nursing satisfaction of the two groups of patients were compared.

**Results:** The anxiety scores and negative scores of the nursing group were lower than those of the control group ( $P < 0.05$ ). The nursing satisfaction of the nursing group was higher than that of the control group ( $P < 0.05$ ).

**Conclusion:** The application of psychological adjustment methods in the treatment of elderly patients with chronic obstructive pulmonary emphysema and respiratory failure has greatly improved the anxiety and negative emotions of patients and improved the satisfaction of patients. It can be used for reference in clinical applications.

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## Correlation between the Therapeutic Effect of Mumps and the Molecular Structure of Xylanase

Yu Mao,<sup>1</sup> Chong Luo<sup>2</sup>

### Abstract

**Objective:** Traumatic arthritis is a common secondary osteoarthropathy in orthopaedics. For long-term basketball training personnel, they are very vulnerable to the trauma of arthritis. Therefore, the emergency treatment of traumatic arthritis in long-term basketball training personnel is discussed in order to achieve the purpose of immediate treatment.

**Methods:** For traumatic arthritis, because of the damage of articular cartilage and subchondral bone, surgical treatment is the main treatment and non-surgical treatment is the auxiliary. However, for basketball trainers, if they have recurrent traumatic arthritis, they need emergency treatment because of the conditions in the field. This paper puts forward the emergency treatment of traumatic arthritis by external washing with traditional Chinese medicine. 80 patients with traumatic arthritis of foot and ankle were randomly divided into observation group and control group, 40 cases in each group. The observation group was treated with the emergency method of external washing with Chinese medicine, and the control group was treated conservatively.

**Results:** The difference between the two groups was statistically significant ( $P < 0.05$ ). The recovery of the patients in the observation group was better than that in the control group ( $P < 0.05$ ).

**Conclusion:** The emergency treatment of traumatic arthritis for long-term basketball trainers can improve the excellent rate of treatment to a certain extent, with remarkable effect.

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## The Treatment of Preschool Children's Games for Children with Autism

Jiao Shen

### Abstract

**Objective:** Interventional therapy for children with autism spectrum disorders has been contemplated by academics and society. This paper is mainly about the empirical research on game therapy intervention for children with autism. The game is the main form of intervention, through the use of experimental methods and investigation methods.

**Methods:** This article explores the effects of game therapy interventions on educational interventions in preschool children with autism, and the factors that influence the effects of interventions during the intervention process, and analyses, summarizes, and presents perspectives.

**Results:** After four months of intervention, the seven children tested achieved varying degrees of improvement. From image analysis, observation records and questionnaire results, children have made more or less progress in the establishment of a sense of security, the completion of fine movements, emotional expression, cognitive ability and emotional communication. In view of this, this study proposes to look forward to the following aspects: First, strengthen the interface between education, games, psychology and medical disciplines. The second is to enhance the talent training of game teachers in special education under the multi-disciplinary background. The third is the flexible use of the Internet + parental participation model. The fourth is to promote the establishment of a diagnostic, therapeutic and evaluation system based on games.

**Conclusion:** In the art education of children with autism and even more people, game therapy has proved very beneficial.

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## Biomechanical Analysis of Dancers' Acute Ankle Sprain

Xiaoqiang Yang

### Abstract

**Objective:** This paper describes the biomechanical characteristics of the ankle joint itself by analysing the two types of regressive movements of the left front field and the rear leg in the dance under the unified fatigue degree and external motion conditions..

**Methods:** The kinematic parameters of the athletes' fatigue before and after the ankle joint special technical movement were tested. The biomechanical characteristics of the ankle joint movement before and after exercise fatigue were compared and analysed.

**Results:** The changes of the parameters of the ankle joint movement before and after fatigue can show that the average landing stability time of athletes before fatigue is 400ms, the landing stability time after fatigue is increased to 503ms, and the reaction time is greatly prolonged; in addition, the average yield of 100ms before landing before fatigue is  $21.61^\circ$ , the average yield of 100ms before landing after fatigue is  $18.75^\circ$ , and the value is decreased, while other data also have different degrees change.

**Conclusion:** The impact of sprains provides data support for ankle sprains, and hopes to reduce the occurrence of acute sports sprains by analysing the trend of these parameters, and provide a theoretical basis for scientific and health training.

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## The Improvement of Self-Cognition of Depressive Students by Psychological Education in Colleges and Universities

Peng Su

### Abstract

**Objective:** To explore the effect of psychological education on self-cognition of depression students.

**Methods:** Eighty patients with depression were randomly divided into intervention group (drug + psychological education) and control group (only medication). The Hamilton Depression Scale (HRSD) and Self-Harmony Scale were performed before and 1 year after enrolment. SCCS), Self-Esteem Scale (SES) assessment.

**Results:** The scores of HRSD ( $25.28 \pm 2.55$ ), SCCS ( $107.16 \pm 3.95$ ), and SES ( $21.63 \pm 1.75$ ) in the intervention group were significantly lower than those in the control group ( $27.65 \pm 2.21$ ,  $118.45 \pm 3.78$ ,  $32.70 \pm 2.03$ ).

**Conclusion:** Psychological education combined with drug therapy has positive significance for self-cognitive evaluation, self-experience and self-expression of depression students.

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## The Prevention and Treatment of Cervical Spondylosis in Foreign Language Teachers in Yoga

Jian Fan

### Abstract

**Objective:** Cervical spondylosis is highly prevalent in the foreign language teachers. Through quantitative analysis, this paper adopts a group observation method and compares the data between groups and groups to explore the prevention and treatment effect of yoga exercise on foreign language teachers' cervical spondylosis.

**Methods:** The author divided 60 cervical vertebrae patients into A and B groups, and invited 34 foreign language teachers without a history of cervical spondylosis to form group C, which is the control group. Mainly for the validity, the yoga training for group A and C was carried out in 10 months, and the Neuromatic2000M/C neuromuscular apparatus and PPX-L dual-energy x-ray bone calculus were tested according to the relevant literature. The author recorded the results and used social statistics software to compare between the groups.

**Results:** It was found that the cervical amplitude measured by cervical spondylosis group (A and B) before training was lower than that of the control group ( $P < 0.01$ ), while the time course was greater than the control group ( $P < 0.01$ ); after training, the amplitude of cervical spondylosis group (A) and control group (C) were increased ( $P < 0.01$ ) and ( $P < 0.05$ ), time course both decreased ( $P < 0.01$ ) and ( $P < 0.05$ ); combined with the relevant test.

**Conclusion:** The efficacy evaluation showed that the effective rate of cervical spondylosis was 82.85%, which made it possible to have better control effect on cervical spondylosis of foreign language teachers through yoga training.

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## Modeling Research on the Effect of Folk Music on the Alleviation of Paranoid Mental Disorder

Aiqin Wang

### Abstract

**Objective:** To observe the influence of folk music psychotherapy on brain waves in patients with paranoid mental disorder, and to explore the therapeutic methods for the rehabilitation of patients with chronic schizophrenia.

**Methods:** (1) Literature research method: "The folk music therapy", "paranoid mental disorder" and "brain electricity" were the key Search for words to obtain relevant literature and academic papers. (2) Scale measurement method: Through the designed questionnaire, the patient's opinions and suggestions on folk music therapy were obtained, and the feelings of participating in the treatment recorded. Chronic schizophrenia patients were measured using the Concise Psychiatric Rating Scale (BPRS) and the Daily Living Ability Scale (ADL). (3) Case interview method: Some case interviews were recorded and organized during the folk music therapy process. (4) Statistical method: The results of EEG data before and after were collected. Spss version 20.0 software was used to establish a database. Descriptive statistics and correlation analysis was performed.

**Results:** Finally, the regression model was used to analyse the effect of folk songs on the relief of paranoid mental disorder. It was concluded that folk music therapy can regulate the level of brain electrical activity and the level of excitement of the human body, so that the brain is often in a specific brain wave state.

**Conclusion:** Long-term hospitalization is conducive for paranoid mental disorders to relieve symptoms and restore social function.

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## The Effect of English Writing Training on the Improvement of Brain Cognitive Dysfunction in College Students

Jin Xie

### Abstract

**Objective:** A study from the University of Sydney shows that English writing training can improve brain function, especially for those with mild cognitive impairment of the brain.

**Methods:** Mild cognitive dysfunction refers to the recognition of cognitive abilities. Decreased (such as memory loss), but still able to take care of themselves, is a precursor to Alzheimer's disease.

**Results:** This study (a clinical trial of brain and English writing training) is the first to reveal mild cognitive function in people over 55 years age., A positive correlation between English writing training and brain function was observed among the obstacle students.

**Conclusion:** The stronger the English writing ability, the more beneficial it is to the brain.

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## The Effect of English Teaching on the Behaviour of Stuttering Students

Yue Chen

### Abstract

**Objective:** In order to improve students' oral comprehension ability and level of English teaching and training, this study proposes a method to integrate stuttering training into oral English teaching.

**Methods:** Using the experimental design mode of pre-test and post test in the experimental group and the control group, 100 freshmen majoring in English and 100 non-English major students were selected, and the ratio of male and female was 1:1. There are 50 English majors and 50 non English Majors in a group, 25 boys and girls in each group. On the basis of English teaching and training, the experimental group of English majors and non-English majors have a three-month oral English teaching practice, and the control group of English majors and non-English majors have a conventional English teaching method.

**Results:** The Non-English Majors' oral comprehension ability trained by this method is the best. However, the oral comprehension ability of the control group did not improve significantly. The difference between the experimental group and the control group before and after training was also significant ( $P < 0.05$ ), indicating that stuttering students' behaviour training can effectively improve the oral comprehension ability and English teaching training level of Non-English Majors and English majors. Compared with the control group, the difference before and after training was also significant ( $P < 0.05$ ).

**Conclusion:** This method has certain teaching and training effect, and effective English Learning Behaviour Teaching and training can also be extended to other areas of stuttering rehabilitation training.

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## Effect of Chemotherapy Nursing on Drug Sensitization Cancer Cells in Patients with Liver Cancer

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### Abstract

**Objective:** To explore the effect of chemotherapy nursing, a specialty within oncology nursing on drug sensitivity of cancer cells in patients with liver cancer.

**Methods:** Eighty patients with liver cancer were divided into experimental group (40 cases) and control group (40 cases). Patients in the control group were given routine nursing intervention. Patients in the experimental group were given chemotherapy nursing path intervention on the basis of routine nursing. Patients in both groups were treated with cisplatin (DDP), 5-fluorouracil (5fu), and adriamycin (ADM). After different nursing interventions, the changes of drug sensitivity of cancer cells in the two groups were compared, and the complications were recorded.

**Results:** Through the two groups of results, IGF-1R was screened and significantly inhibited, and it was combined with chemotherapy drugs commonly used in liver cancer, cisplatin (DDP), 5-fluorouracil (5fu), adriamycin (ADM), etc., to screen and analyze the expression of chemotherapy drugs (IGF1R-as).

**Conclusion:** Inhibition of HepG2 proliferation in human hepatocarcinoma patients to explore the possibility of combination therapy for anti-hepatocarcinoma patients.

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## The Effect of Humid Environment on Skin Disease Recurrence in Patients with Eczema Dermatitis

Xiaoguang Su,<sup>1</sup> Yaohui Ma,<sup>2</sup> Qing Wang,<sup>2</sup> Yunpeng Ma<sup>1</sup>

### Abstract

**Objective:** To investigate the effect of moist environment on recurrence of patients with eczema and dermatitis.

**Methods:** From 2013 to 2014, a total of 200 patients with eczema dermatitis were diagnosed in our hospital. The data of patients with recurrence were statistically analysed. The patients were randomly divided into two groups, of which 100 patients in the control group were affected by non-humid environment. 100 patients in the experimental group were affected by the use of humid environment. The nursing staff counted the recurrence effect and the incidence of adverse reactions in the two groups. The patients were sorted and analysed after the discharge.

**Results:** By comparing and analysing the two different influencing methods, according to the recurrence effect of the patients, the recurrence rate of the experimental group was significantly higher than that of the control group, and 10 patients with adverse reactions after receiving the influence in the control group. There were 3 patients with adverse reactions in the group.

**Conclusion:** The use of moist environment in the treatment of eczema dermatitis patients can significantly increase the probability of adverse reactions in patients, and the impact is significantly higher than non-wet environment. Patients should avoid the humid environment in order to prevent recurrence.

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## Clinical Analysis of the Effect of Music Therapy on the Relief of Depression in College Students

Pingping Xu,<sup>1</sup> Liang Zhao<sup>2</sup>

### Abstract

**Objective:** To evaluate the therapeutic effect of music therapy on patients with depression.

**Methods:** From July 2010 to May, 2011, 117 patients with depression treated with the Mental Health Centre of Tongji Medical College of Huazhong University of Science and Technology were selected as the subjects of the study, and they were divided into the control group (n = 51) and the observation group (n = 66). The patients in the control group were treated with antidepressants only, while the patients in the observation group were treated with a combination of music therapy, 2, 4, 6, 8 weeks before and after the treatment, and the Hamilton Depression Scale (Hamil) was used.

**Results:** The reduction rates of 2, 4, 6 and 8 weeks after treatment in the observation group were 29.7%, 42.3%, 60.3% and 74.0%, respectively, and 21.8%, 38.2%, 53.3% and 65.1% in the control group. The scores of HAMD in 2, 4, 6 and 8 weeks after treatment were statistically significant ( $P < 0.05$  or  $P < 0.01$ ). At the end of the 8th week, the apparent efficiency of the observation group was 86.4%, which was higher than that of the control group. The difference was statistically significant ( $\chi^2 = 4.47$ ,  $P = 0.01$ ). There was significant difference in the curative effect between the two groups after 8 weeks of treatment ( $P < 0.05$ ).

**Conclusion:** Music therapy can achieve rapid and effective treatment in patients with depression, and music therapy is worth popularizing in the depression ward.

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## The Influence of Clothing and Herbal Finishing on the Damage of Skin Barrier

Shan Fu

### Abstract

**Objective:** Clothing is in direct contact with the human body, so it is of great significance to study the impact of clothing herbal finishing on skin barrier damage. The intrinsic properties of textile fibres provide space for the growth of bacteria.

**Methods:** Herbs are abundant in nature, non-toxic and inexpensive. The extracts of plants, such as rhizomes, leaves, flowers and seeds, have antibacterial properties. An organic cotton sunscreen shirt has been developed using turmeric and azalea plants. The combination of pomegranate with various medicinal properties has been applied to sunscreen shirts.

**Results:** The control group was set up for skin barrier damage test, exposed to outdoor ultraviolet light for 1 hour, and the expression of skin-related protein was obtained according to the skin barrier function damage model.

**Conclusion:** The experimental results show that the herbal finishing of clothing can improve the expression of FLG, LOR, INV and LEKTI, and thus improve the barrier function of damaged skin.

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## The Mitigation Effect of University Public Physical Education Curriculum on Depression

Xiaoxu Wang, Yurong Chen

### Abstract

**Objective:** : In order to alleviate the depression of college students with depression, the effect of college public physical education on depression was studied. This paper discusses the related principles of physical exercise intervention for college students' depression. On this basis, it analyses the benefits of the university public physical education curriculum and introduces the precautions such as exercise intensity.

**Methods:** In order to verify the effectiveness of the Daxu public physical education curriculum in relieving depression, a comparative experimental test was set up. One hundred college students with depression were selected and divided into two groups. Under the 30-day test period, one group participated in public physical education courses and the other group did not participate. After 30 days, a psychological counselling visit was conducted to 100 college students, and it was concluded that more than half of the depression patients who participated in the public physical education curriculum had improved.

**Results:** Exercise therapy can achieve improvement and treatment by regulating emotions, building confidence, and being comfortable.

**Conclusion:** This study has certain guiding significance for clinical treatment of college students with depression.

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## Isokinetic Muscle Strength of Knee Joint in Patients with End-stage Disease of Low-intensity Aerobic Exercise

Yurong Chen, Xiaoxu Wang

### Abstract

**Objective:** By comparing and analysing the changes of knee isometric muscle strength and the surface electromyogram of quadriceps in patients with end-stage disease of low-intensity aerobic exercise, it provides a reference for the prevention and treatment of terminal disease.

**Methods:** Twenty athletes were selected as experimental subjects (10 in the normal control group and 10 in the terminal disease group). The knee joint strength and sEMG were tested under low-intensity aerobic exercise. The knee joint isometric strength and strength were compared and analysed. Changes in quadriceps sEMG were noted.

**Results:** The test results were as follows: 1) In the isometric exercise, the extensor PT of the terminal disease group was significantly smaller than that of the control group, and the F/E ratio was significantly larger than that of the control group; 2) at the isokinetic exercise, the extensor PT of the terminal disease group was significantly smaller than that of the control group. The control group changed significantly as the angular velocity of the movement increased.

**Conclusion:** It can be seen that the strength difference between the flexor and extensor muscles of the knee joint athletes is more prominent, and there is a phenomenon of low medial femoral muscle activity and imbalance between the medial femoral muscle and the lateral femoral muscle.

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## Effect of Dandelion Seed Wind Transmission on the Condition of Patients with Respiratory Diseases

Zhe Wu, Zhizhong Xue, Xiuping Wang

### Abstract

**Objective:** Respiratory allergic diseases, including allergic rhinitis and asthma, are chronic allergic inflammation of the airway caused by immune imbalance under the stimulation of allergens. When normal adults and children inhale dandelion seeds (pollen-like allergen) allergen, it will cause low levels of immune response and produce specific IgG1 and IgG4 antibodies in the body.

**Methods:** In order to analyse the correlation between the wind propagation of the dandelion seed and the disease of the respiratory virus, this study collected the wind propagation frequency of the dandelion seed in spring and summer, the concentration of air total suspended particulate matter (TSP), the meteorological factors (the daily air temperature, the daily maximum air temperature, the daily minimum temperature. The average daily air pressure, 24-hour precipitation, average daily relative humidity) and five kinds of respiratory system diseases (allergic rhinitis, asthma, acute pharyngitis, acute laryngitis, and acute tracheitis) in the same period were taken to see a doctor, and the time trend chart of each element was drawn in the weekly unit.

**Results:** In summer, the TSP concentration, wind transmission frequency of dandelion seeds, and temperature equivalence were significantly higher than those in spring. The number of patients with five respiratory diseases in summer was much higher than that in spring, which indicated that the wind transmission frequency of dandelion seeds and the TSP concentration in air suspension were related to the number of patients with respiratory diseases.

**Conclusion:** Patients with respiratory diseases should be protected against dandelion seed wind in summer as their dispersion is higher in this period.

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## Lean Intelligent Management Method of Drug Production in Patients with Hypertension

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### Abstract

**Objective:** In order to further improve the safety of drug use in patients with hypertension, a lean intelligent management method for drug production in patients with hypertension was put forward.

**Methods:** Firstly, the production business and its corresponding process involved in the operation and maintenance system of drug production information are clarified, and the main work in the inspection stage and processing stage included safety inspection, safety evaluation, and correction of deviation. On this basis, the business process optimization was carried out, which corresponds to the production business division of the requirement analysis part. The optimization contents included desktop operation and maintenance work flow, inspection work flow, customer service process and integrated business process. Finally, the weight of the first-grade index was determined by the set-valued iterative method, and the weight of the second and third level rating index is determined by the analytic hierarchy process (AHP). Finally, the extension model of the compound element was used to evaluate the implementation effect of the lean management project in the production safety of pharmaceutical production enterprises.

**Results:** The evaluation results showed that the level of lean management project in production safety was "good", so the lean management method can help the pharmaceutical production enterprises to improve the organization system, operation system and information system construction.

**Conclusion:** The processes applied in the inspection and processing stage of the study showed a reduction in the safety problems and improved the level of safety management in drug production.

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## The Method to Alleviate the Condition of Patients with Will and Behaviour Disorder under Ideological and Political Education

Xiyun Zhang,<sup>1</sup> Zhenxin Li<sup>2</sup>

### Abstract

**Objective:** In order to make the medical staff meet the needs of the new medical model in cognition and behaviour, we discuss the application of medical psychology in the clinical work of will and behaviour disorder according to the clinical characteristics of the Department of Fine Theology.

**Methods:** A total of 300 inpatients with volitional behaviour disorder were divided into experimental group and control group, including 150 patients in experimental group and 150 patients in control group. The experimental group was treated with the combination of drug therapy and psychological ideological and political education, while the control group was only treated with traditional drug therapy. The statistical method used was the four grid test.

**Results:** The experimental results showed that the patients in the experimental group who took the combination of drug treatment and psychological ideological and political education had a significant alleviation of the symptoms of will behaviour disorder, and the grade changed from low willpower before the experiment to slightly active state, while the control group who only took the drug treatment was still in the state of low willpower and apathy.

**Conclusion:** Ideological and political education and psychological nursing have a significant effect on willpower nursing, which provides an effective reference for willpower behaviour nursing.

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## Special Acupuncture Therapy in the Treatment of Acute Waist Muscle Injury of Middle Aged and Elderly People Caused by Dancing

Yu Li

### Abstract

**Objective:** Special acupuncture therapy and massage therapy were used to treat middle aged and elderly patients with acute lumbar muscle injury caused by dancing, through the assessment of clinical symptoms, muscle strength and visual analogue scale evaluation indicators, the effects of special acupuncture therapies on acute lumbar muscle injury were verified.

**Methods:** A total of 2000 middle aged and elderly patients who suffered from acute waist injury caused by dancing were randomly divided into two groups, 1000 in each group. One group received special acupuncture therapy, and the other was given massage. Statistical analysis was performed to note the difference between the two groups.

**Results:** Of the 1000 cases in the special acupuncture therapy group, 850 showed a good effect, 100 had improvement whereas 50 cases had no effect, giving the total efficiency of 95.00%. In the massage group, 820 cases had a good effect, 100 cases improved whereas 80 cases had no beneficial effect with a total efficiency of 92.00%. The results showed that the comparisons of the clinical symptoms, muscle strength and visual analogue scale had a significant statistical difference in both groups before and after 5-days treatment. Compared with massage therapy, special acupuncture therapy had significant difference in the other indicators except muscle strength,  $P < 0.05$ ; Therefore, the therapeutic effect of patients in acupuncture group was superior to that of patients having massage therapy.

**Conclusion:** The therapeutic effect of special acupuncture on acute waist muscle injury is relatively ideal, and it can be applied in clinical practice.

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## The Improvement of the Quality of Life Behaviour of Children with Autism by Sports

Zhen Guo, Sijie Tan

### Abstract

**Objective:** To investigate the effects of physical exercise on the behaviour and quality of life of children with autism.

**Methods:** Sixty children with autism were randomly divided into control group and experimental group. The control group received routine special education. The experimental group used the sports method to intervene in children with autism on the basis of routine special education.

**Results:** After 6 months of treatment, compared with the control group, the experimental group Feelings, language, communication, self-care, physical exercise ability were significantly improved, the difference was statistically significant ( $P < 0.01$ ). The experimental group and the control group children with autism assessment (CARS) scale score before treatment ( $37.96 \pm 7.03$ ) points and ( $37.27 \pm 10.69$ ) points decreased to ( $30.25 \pm 7.92$ ) points and ( $35.91 \pm 6.23$ ) points after treatment, and the improvement of the experimental group was significantly better than that of the control group ( $P < 0.01$ ); experimental group and control group The Klinefelter Behaviour Scale decreased from ( $18.96 \pm 4.00$ ) and ( $18.17 \pm 5.63$ ) points before treatment to ( $14.73 \pm 4.23$ ) points and ( $17.63 \pm 3.11$ ) points after treatment.

**Conclusion:** Sports for children with autism Aspects, interpersonal, emotional expression, behaviour, expression and movement have the ability to promote significant clinical effects on children with autism.

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## The Application of Music in the Teaching of College Students' Mental Health Education

Yang Li

### Abstract

**Objective:** As a unique art subject, music teaching is an effective way to carry out mental health education. It has played an important role in guiding students' bad mood, communicating and coordinating interpersonal relationship, casting perfect personality and promoting their mental health.

**Methods:** Using social distress and avoidance scale as a screening and evaluation tool, the present study investigated 500 college students, from whom 100 were selected with social anxiety tendency as study subjects. They were randomly divided into an experimental group and Control Group. SCL-90 and communication anxiety scale was used for assessment and the data was analyzed using SPSS.

The experimental group received music therapy counseling, and the Control Group did not have any intervention. At the end of the study, the results were compared vertically and horizontally, combined with other evaluation and self-evaluation measures.

**Results:** College students of different ages and both genders with different levels of social anxiety were influenced by music therapy which effectively reduced social anxiety, regulated the mood, reduced loneliness, and had a good influence on memory retention.

**Conclusion:** Music therapy is an ideal "natural therapy", which makes use of the non-language aesthetic experience of music to achieve the goal of psychological adjustment and has a great impact on the mental health education of college students.

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## Effect of Piano Fingering Exercise on Finger Flexibility Recovery in Alzheimer's Patients

Yan Wang

### Abstract

**Objective:** To investigate the positive effects of piano fingering exercises on finger flexibility recovery in patients with Alzheimer's disease.

**Methods:** A total of 100 patients with Alzheimer's disease admitted to our hospital from July 2016 to July 2018 were enrolled. The patients were randomly divided into control group and observation group. The control group was subjected to conventional finger training, and the observation group performed piano fingering exercises to compare the finger flexibility and cognitive function scores of the two groups of patients.

**Results:** The finger flexibility score of the observation group was significantly higher than that of the control group ( $P < 0.05$ ). The improvement of cognitive function in the observation group was significantly better than that of the control group ( $P < 0.05$ ).

**Conclusion:** The implementation of active piano fingering exercises for patients with Alzheimer's disease can effectively improve the patient's finger flexibility and enhance the cognitive ability of patients, which has a positive promotion significance.

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## The Influence of Practical English Writing on Learners' Anxiety

Kai Tang

### Abstract

**Objective:** English learners' practical writing will affect their anxiety level, and learners' anxiety level will affect their learning efficiency and motivation.

**Methods:** Exploring the relationship between English practical writing and English learners' anxiety level can provide guidance and Suggestions for English teaching. Taking English learners in their freshman and sophomore years as the research objects, the foreign language learning anxiety scale and academic achievement attribution scale were used as the research tools to analyse the correlation of the measurement results..

**Results:** During the continuous 2-hour English practical writing test, communication anxiety, negative evaluation anxiety and learning anxiety were significantly positively correlated with the writing amount, while negative evaluation anxiety and learning anxiety were significantly negatively correlated with difficulty.

**Conclusion:** According to the experimental results, teachers should guide learners to make a reasonable attribution of their own anxiety, and reasonably allocate the writing time and difficulty of practical English writing.

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## The Influence of Architectural Art Education on the Psychological Development of Autistic Children

Gang Chen, Liangliang Wei

### Abstract

**Objective:** This paper discusses the feasibility of promoting the psychological development of autistic children through architectural art education, and puts forward the idea of rehabilitation treatment for autistic children through architectural art classroom teaching.

**Methods:** At present, the architectural art education for children with autism disorder is generally poor in content and weak in pertinence, which is far from satisfying the development of architectural art potential for children with autism disorder. Cannot effectively promote the physical and mental development of children with autism. The important effect of art education on the psychological growth of autistic children in different stages is elaborated. The content of art classroom teaching in each stage is put forward.

**Results:** With vivid teaching cases and experience, it reveals the necessity and importance of art education in the growing process of autistic children.

**Conclusion:** Through the education of architectural fine arts, it can play a good role in promoting the rich knowledge and experience, the improvement of thinking ability, the enhancement of creative ability, the healthy development of emotion and the continuous growth of social adaptability of children with autism disorder.

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## The Effect of Monochromatic Photoconductive Stimulation on Myopia in Animals

Fang Wang,<sup>1</sup> Yanlin Zheng<sup>2</sup>

### Abstract

**Objective:** A controlled experiment was designed to investigate the effects of green light and blue light on myopia in animals.

**Methods:** Forty-eight guinea pigs at the age of 10 days were selected and divided into three groups, which were respectively raised in the environment of green light illumination (wavelength 530nm), blue light illumination (wavelength 480nm) and white light illumination (wavelength mixture). The lighting time was from 8:00AM to 8:00 PM every day for 10 days. The pineal tissue of guinea pigs in each group was taken at 10:00AM and 10:00 PM, respectively, and the melatonin content in the white light group was taken as the baseline value to compare the changes in the melatonin content in the green light group and the blue light group. The results were as follows: at 10:00AM, the content of melatonin in the pineal tissue of guinea pigs in the green-light lighting group, blue-light lighting group and white-light lighting group was  $85.2 \pm 2.79$  pg/ml,  $45.92 \pm 1.74$  pg/ml and  $53.32 \pm 2.51$  pg/ml, respectively. At 10:00 PM, the content of melatonin in the pineal tissue of guinea pigs in the three groups was  $118.15 \pm 4.23$  pg/ml,  $63.27 \pm 1.43$  pg/ml, and  $73.12 \pm 2.72$  pg/ml, respectively.

**Results:** Compared with the white light group, the levels of melatonin in both the green light group and the blue light group increased, while the blue light group decreased.

**Conclusion:** While blue light can aggravate the myopia caused by monochromatic light stimulation in animals.

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## The Enthusiasm of College Art Education to Prevent College Students from Depression

Shijia Zhang

### Abstract

**Objective:** To study the role of college art education in the enthusiasm of college students in depression.

**Methods:** The art education process in colleges and universities was carried out. Questionnaires were distributed to participating students before and after implementation. Through questionnaire comparison, students were assessed for changes in depression before and after college art education.

**Results:** After college art education, college students' cognitive level of depression increased, their attitudes toward depression patients improved, and the tendency to seek professional psychological counselling when emotional problems appeared. The difference was statistically significant.

**Conclusion:** Strengthening art education in colleges and universities can contribute to the knowledge propaganda of depression, but it has limited effect on improving the emotional state of depression.

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## Bibliometrics Analysis of the Status Quo of TCM Nursing of Vertigo in China

Li Yang, Xueqin Lu, Feng Cao

### Abstract

**Objective:** To analyse the literature related to TCM nursing of vertigo in China and systematically analyse the current status and latest progress of TCM nursing of vertigo in China, so as to provide reference for the theory and practice research of TCM nursing of vertigo.

**Methods:** The literatures related to TCM nursing of vertigo in Chinese sci-tech journal database and Chinese journal full-text database were searched and analysed.

**Results:** A total of 135 related literatures from 69 journals were included, and the number of literatures showed an increasing trend. The literatures of experience summarization and control study accounted for 54.07% and 43.70% respectively. And the nursing measures mainly include dialectical nursing of traditional Chinese medicine, ear acupuncture point pressing, comprehensive nursing plan of traditional Chinese medicine, integrated Chinese and western medicine nursing, etc.

**Conclusion:** The diagnosis and treatment of vertigo in TCM started early and tended to develop steadily. At present, it is necessary to explore the precision nursing plan of TCM specialty by combining the evidence-based concept and carry out high - quality TCM nursing research.

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## Effects of Piano Music Assisted Therapy on Self-efficacy and Health of Patients with Anxiety

Zhen Song

### Abstract

**Objective:** To investigate the effect of piano music adjuvant therapy on self-efficacy and health of patients with anxiety.

**Methods:** A total of 80 anxiety patients treated in our hospital from December 2018 to March 2019 were randomly divided into observation group and control group according to the order of consultation. The control group was treated with conventional treatment and the observation group was based on the control group using piano music. Complementary treatment, understanding the patient from the ground, and implementing therapeutic interventions. The changes of self-efficacy and negative emotion of the two groups were compared before and after treatment intervention.

**Results:** The self-efficacy score, anxiety score, and depression score of the two groups were not statistically significant when they were included in the study (before treatment) ( $P > 0.05$ ). Observation group after treatment results expectations and self-efficacy expectations scores, total scores were higher than the control group, anxiety and depression scores were lower than the control group, the difference was statistically significant ( $P < 0.05$ ).

**Conclusion:** Piano music-assisted therapy can improve the communication between doctors and patients, significantly improve the negative emotions of patients with anxiety, and improve their self-efficacy.

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## The Effect of Breast Cancer on Human Skin Microbes

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### Abstract

**Objective:** We explore the correlation between skin microbes and breast cancer, and to identify possible breast cancer microbial risk markers and potential microbial-based prophylaxis.

**Methods:** Five untreated breast cancer patients, five breast cancer patients treated for 1-3 months, and five healthy subjects were selected, and their skin microbes were collected. The 16S rDNA sequences were obtained and the data were analysed by Trimmomatic and QIIME software's.

**Results:** A total of 659 OUTs were obtained by clustering. The number of OUT in the HZ group was significantly lower than that in the JK group and the ZL group ( $P=0.02$ ;  $0.03<0.05$ ), while the alpha diversity and  $\beta$  diversity were also lower than those in the JK group, indicating that the overall bacterial abundance and diversity of the HZ group were decreased. At the dominant species level, there were no significant differences among the three groups. Proteobacteria, Bacteroidetes, Firmicutes and Actinobacteria were the dominant phylum. Moraxellaceae, Streptococcaceae, Corynebacteriaceae, Lactobacillaceae were the main families. There were 345 species in the three groups of samples, among which *Corynebacterium*, *Lactobacillus*, *Enhydrobacter*, *Streptococcus*, *Staphylococcus*, *Acinetobacter* existed in each sample, and their relative abundances were more than 1%. The differences in flora between the groups were mainly concentrated on the less abundant strains: the abundance of Fusobacteria, Actinomycetaceae, Micrococcaceae, Fusobacteriaceae, Veillonellaceae, Enterobacteriaceae, *Acinetobacter* and *Pseudomonas* in HZ group was significantly lower than that of the JK group.

**Conclusion:** There are significant differences in microbes between healthy people and breast cancer patients.

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## Metabolomic Study of the Hypoglycaemic Effect of Propolis on Type 2 Diabetic Rats

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### Abstract

**Objective:** Propolis is used for treatment of diabetes due to potential hypoglycaemic effect. However, the underlying metabolic mechanism is ambiguous. The study was carried out to investigate the hypoglycaemic effect of propolis in type 2 diabetic rats.

**Methods:** After 8 weeks fed with high-sugar high-fat fodder, the rats were fasted and were injected intraperitoneally once with STZ (40 mg/kg). Three days later, dynamic fasting blood glucose was detected. Model rats were randomly divided into diabetic and drug-treated group. Propolis-treated group were fed with propolis extract (0.5 g/kg/day for 28 days), then urine samples were collected. The samples were diluted with distilled water, and then filtrated before injection. LC-MS/MS was utilized. Metabolomic dataset was composed of  $t_R$ , peak area and sample number which were subjected to PLS-DA. The mostly altered metabolites were screened out to illustrate the underlying metabolic pathways.

**Results:** Metabolomic profiles were successfully constructed. Through PLS-DA, samples from each group were clearly separated on score plot. 13 metabolites were screened out and identified on loading plot as biomarkers distinguishing propolis-treated from model rats. The metabolomic pathway mainly associated with bile acid metabolism due to up-graded level of cholic acid, chenodeoxycholic acid and taurine.

**Conclusion:** In this research, results indicated the hypoglycaemic effect of propolis. This study provides a reference for the clinical application of propolis and has important significance for further exploration of the mechanism.

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## Hypoglycaemic Effect of Polysaccharides from the Fermented Mycelia of *Grifola frondosa*

Tao Jiang,<sup>1,2</sup> Bing Lin,<sup>1,2</sup> Ye Luo,<sup>1,2</sup> Xiaoman Tan,<sup>1,2</sup> Tong Wu,<sup>1,2</sup> Zhitong Li<sup>1,2</sup>

### Abstract

**Objective:** The objective of this study was to extract polysaccharides from the fermented mycelia of *G. frondosa* and to determine its hypoglycaemic effect.

**Methods:** The strain of *G. frondosa* was inoculated into liquid fermentation medium in Erlenmeyer flask. The culture was maintained in an incubator at 26<sup>238</sup>/<sub>92</sub>°C, shaking at 120 rpm for 5 days. After fermentation, the mycelia were freeze-dried and ground to powder. Extraction of polysaccharides was carried out using boiling water for 3 hours. Determination of total polysaccharides was carried out using the phenol-sulfuric acid method. Subsequently, Diabetic model rats were established by intraperitoneal injection of streptozotocin (35 mg/kg, dose/body weight). The model rats were randomly divided into control, drug and treatment group which administered saline, metformin hydrochloride and polysaccharide (1.0 g/Kg, dose/body weight) respectively for 60 days. Finally, fast blood glucose and body weight of rats were monitored weekly.

**Results:** The concentration of polysaccharide reached 1.29 mg/g in the fermented mycelia of *G. frondosa*. Administration of polysaccharide of *G. frondosa* led to significantly increase in body weight and decrease in fasting blood glucose compared with control group (P<0.05). But there was no significant difference between drug and treatment group.

**Conclusion:** The fermented mycelia of *G. frondosa* also has high concentration of polysaccharides and has hypoglycaemic activity. The effect of mycelial polysaccharide was close to that of metformin hydrochloride, but it cannot replace the effect of metformin hydrochloride. This provides theoretical support for further research.

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## ***In vivo* Effects of Citral-loaded Liposome on Controlling *Penicillium italicum* and Extending Storage Life of Sugar Orange**

Yuanbao Jin,<sup>1,2</sup> Peizhou Chen,<sup>1,2</sup> Yumeng Liu<sup>1,2</sup> Liying Wang<sup>1,2</sup>

### **Abstract**

**Objective:** *Penicillium italicum* is a major disease of sugar orange all over the world. In vitro activity of citral-loaded liposome against *P. italicum* were already proved in our previous experiments. The purpose of this study was to investigate the in vivo effect of citral-loaded liposome on controlling the postharvest decay on sugar orange caused by *P. italicum*.

**Methods:** Citral-loaded liposome were prepared by thin lipid film hydration followed by high-pressure homogenization. Totally 270 sugar oranges were randomly divided into three groups for different treatments (untreated, citral treated, and liposome treated). Each treatment had three replicates. Fruit of treated groups were dipped into 125 mg/mL citral dispersion or liposome solution (equal actual concentration of citral) for 2 min and air-dried in a fume hood. Then all the fruit were stored at 25°C and 70% RH for up to 30 days for observation.

**Results:** The decay incidence increased continuously during storage. The control and citral treated fruit began to rot at day 14 and day15, respectively, while liposome treated fruit began at day 18. Liposome coating also reduced the incidence by more than 40% compared with untreated and citral treated fruit at day 26.

**Conclusion:** In summary, according to the effect of citral-loaded liposome on controlling the decay caused by *P. italicum*, citral-loaded liposome could be a potential agent for extending the storage life of sugar orange.

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## Enzymolysis-high Temperature and High Pressure-Retrogradation (E-HTHP-R) Method for Preparation of Green Banana Resistant Starch

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### Abstract

**Objective:** Resistant starch is a kind of starch and its degradation product which cannot be absorbed by human small intestine, and is considered to improve the activities of human intestinal function. In this work, an enzymolysis-high temperature and high pressure-retrogradation (E-HTHP-R) method of preparing resistant starch from green banana was developed.

**Methods:** Green banana starch and pullulanase were added into phosphate buffer (pH=7.0) to obtain the starch-enzyme emulsion. The emulsion was maintained at 45 °C for enzymolysis, followed by the high temperature and high pressure (HTHP) treatment at 100°C for 20 min. Then the solution was cooled to room temperature and stored at 4°C for retrogradation. The crystals in the solution was washed and collected using 80% (v/v) ethylalcohol for several times by filtration method and then dried and smashed to obtain the green banana resistant starch (GBRS).

**Results:** The highest product rate of GBRS (72.65%) was obtained when the starch emulsion concentration was 25% (w/v), enzyme amount was 15 ASPU/g, enzymolysis time was 12 hours, and retrogradation time was 24hours. After E-HTHP-R treatment, the starch molecules became smaller and the proportion of amylose increased. The amylose molecules were rearranged to form resistant crystals with higher strength structures during the regeneration process.

**Conclusion:** In summary, resistant starch was successfully prepared by a novel E-HTHP-R method from green bananas.

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## Protective Effects of Fagopyrum Cymosum against DSS-induced Colitis in Mice

Yumeng Liu,<sup>1,2</sup> Xiaoming Zhang<sup>3</sup>

### Abstract

**Objective:** The purpose of this study is to treat DSS induced enteritis with Fagopyrum cymosum (*F. cymosum*).

**Methods:** The mice were randomized into control group, model group, FC treatment groups (0.2, 0.6, 1.2 mg/kg) (n = 10). Except control group, the four groups mice were fed 5% DSS in drinking water for 8 days and recover for 2 days. After the modelling, the *F. cymosum* treatment mice were treated for 14 days. All animals were weighed daily hardness of stools as the scoring criteria.

**Results:** The contents of interleukin-1 $\beta$ , interleukin-4 and interleukin-13, the critical inflammatory cytokines in DSS colitis, derived from the colon were significantly inhibited by *F. cymosum* administration and increasing the level of interleukin-10. *F. cymosum* markedly relieved the effect by repressing the expression of protein kinase B (Akt), B-cell lymphoma-2 (Bcl-2), Bcl-2 Associated X Protein (Bax), cleaved caspase-9, caspase-8 and caspase-3.

**Conclusion:** In the present study, FC improved DSS-induced colitis partly via its anti-inflammatory, anti-oxidant, and immune inhibition potentials, possibly by modulating the AKT, Bax/Bcl-2 and caspase-dependent signalling pathways.

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## The Protective Effect of *Coriolus Versicolor* on Hepatic Injury of ICR Diabetes Mice

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### Abstract

**Objective:** *Coriolus versicolor* (CV) is a natural product of medicinal nature and is edible. This study assessed the protective effect of CV on hepatic injury in diabetic mice induced by streptozotocin (STZ).

**Methods:** Male ICR mice were intraperitoneally injected with 150 mg/kg STZ to induce the diabetic model. Animal grouping were made as following : normal saline (NS), low, medium and high dose of CV groups (LD, MD, HD), diabetic control (DC) and metformin positive control (PC). Indices were detected after 28 days of intragastric administration.

**Results:** If Diabetes mellitus remains uncontrolled and hyperglycemia symptoms persist it can lead to abnormal secretion of inflammatory factors such as TNF- $\alpha$  and IL-6. Compared with DC group, CV and PC group could reduce the levels of TNF- $\alpha$  and IL-6 in the liver homogenate of diabetic mice. If the liver is damaged, the levels of ALT and AST in hepatocytes increase and infiltrate into the blood, thus increasing the blood the levels of ALT, AST which will cause the levels of TBIL to increase abnormally. Compared with DC group, CV group could reduce the levels of ALT, AST and TBIL in serum of diabetic mice.

**Conclusion:** The results showed that CV could effectively improve the abnormal index of diabetic mice. This indicates that CV can inhibit liver damage in diabetic mice and has a protective effect on the liver.

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## Straw Returning with Straw Degrading Microb

Dongsheng Yang,<sup>1,3</sup> Xin Shang,<sup>1,3</sup> Xintong Liu,<sup>2</sup> Dongxu Li,<sup>2</sup> Xuanqi Li,<sup>1,3</sup> Xiaodong Ren<sup>2</sup>

### Abstract

**Objective:** The purpose of this study was to investigate whether straw-degrading microorganisms can enrich organic carbon and organic matter by degrading straw.

**Methods:** In this experiment, three test fields were included in the winter of 2017. The culture of straw degrading microb group was uniformly sprayed on the straw on the test fields. Another test field was taken as a blank control. The third one was taken as medium control. The samples of soil were taken in the 40 cm depth of the soil in the spring of 2018, and then the organic carbon content and organic matter were measured.

**Results:** The organic carbon content of the experimental group with straw degrading microb group was 22.98 g/kg. The carbon content of the blank control group was 13.18 g/kg, and 13.95 g/kg in medium control group respectively. The content of organic matter in the experimental sample with straw degrading microb group was 39.62 g/kg. There were 22.72 g/kg in the blank control group and 24.05 g/kg in the medium control group respectively. These data indicate the organic carbon content and organic matter in the field with the straw degrading microb group was significantly higher than the other two control groups.

**Conclusion:** It could be concluded that straw degrading microb could be used to enrich the organic carbon and organic matter by degrading the straw.

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## Comparison of Main Components and Antioxidant Activity of Polysaccharides from Different Batches Large-scale Fermented Mycelia of *Cordyceps sinensis*

Lanying Wang,<sup>1,2,3</sup> Ling Jiang,<sup>1,3</sup> Dongsheng Yang,<sup>1,3</sup> Jing Zhao,<sup>2</sup> Shaoping Li<sup>2</sup>

### Abstract

**Objective:** In order to study the stability of *Cordyceps sinensis* fungus large-scale fermented mycelia, polysaccharides, protein from different batches fermented mycelia were investigated.

**Methods:** The content of polysaccharides, protein was determined by using phenol-sulfuric acid method and Bradford method respectively. Antioxidant activities of crude polysaccharides were also compared using DPPH radical scavenging activity, hydroxyl radical scavenging ability and superoxide anion scavenging ability method.

**Results:** The extraction rate of polysaccharides was 9.31%, 9.61% and 10.76%, respectively. The content of polysaccharides was 16.8 mg/g, 26.6 mg/g and 25.4 mg/g. And the protein content of the three batches was 2.59 mg/g, 1.26 mg/g, and 2.09 mg/g. In comparing the antioxidant capacity of three batches of *Cordyceps sinensis* polysaccharides, the maximum scavenging ability, DPPH radical scavenging ability, Hydroxyl radical scavenging ability and Superoxide anion scavenging ability of *Cordyceps* polysaccharides were 104.24%, 70.86% and 124.72%. From the comparison of antioxidant capacity, the second batch was found to be the best.

**Conclusion:** The results showed that the fermentation of different batches of hyphae had better stability. This is of great significance for the further research and development of *Cordyceps sinensis*.

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## Antibacterial Effect of Extracts from *Rabdosin serra (Maxim) Hara*

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### Abstract

**Objective:** *Rabdosin serra (Maxim) Hara* is a traditional Chinese herbal medicine. It has antibacterial, anti-inflammatory and anti-inflammatory effects. This paper extracts active substances from *Rabdosin serra (Maxim) Hara*, explore its bacteriostatic properties.

**Methods:** Dry *Rabdosin serra (Maxim) Hara* was used for single factor experiments. The alcohol concentration; material/extraction solution ratio; ultrasonic time was noted. The extract was thermally stable. Four strains of *Staphylococcus aureus*, *Bacillus subtilis*, *Aspergillus niger* and *E. coli* were selected. Test was performed at temperatures of 30 ° C, 50 ° C, 80 ° C, 100 ° C, and 120 ° C.

**Results:** The optimal formulae gained from orthogonal test and single factor test are as follows: temperature 60 ° C, ethanol 60 %, the ratio of material to liquid 1:40 and ultrasonic extraction for 20 minutes. Extraction at a temperature of 120 ° C was markedly inhibited by all four strains which was found to be the strongest inhibition for *Staphylococcus aureus*.

**Conclusion:** *Rabdosin serra (Maxim) Hara* extract has a good antibacterial effect, the extract has good thermal stability in addition, the extract can provide a basis for the processing of food.

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## The Pro-apoptotic Activities of Scutellarin on Liver Cancer Cells via Regulation Mitochondrial Apoptotic Pathway

Yanzhen Wang,<sup>1</sup> Liyan Wu,<sup>1</sup> Liying Wang,<sup>1,2</sup> Yanli Cheng<sup>2</sup>

### Abstract

**Objective:** Scutellarin shows various pharmacological properties; however, its anti-liver cancer effects and underlying mechanisms have not been reported.

**Methods:** The cytotoxicity property of scutellarin in human liver cancer cells and their xenografted tumour nude mice were investigated.

**Results:** Scutellarin suppressed cell viability, enhanced the cell apoptosis rate, LDH release, caspase-3 activation and reactive oxygen species accumulation, caused the dissipation of mitochondrial membrane potential at a dose-dependent manner. Scutellarin inhibited the growth of HepG2- and PLC/PRF/5-xenografted tumours in BALB/c nude mice after without influencing their bodyweights and organ functions. Scutellarin strongly enhanced the expression levels of pro-apoptotic proteins including Bax and cleaved caspase-3, and inhibited the expression levels of anti-apoptotic proteins including Bcl-2 and Bcl-xL in liver cancer cells and their xenografted tumour tissues. Scutellarin significantly suppressed the phosphorylation of ERKs and AKT in both HepG2 and PLC/PRF/5 cells, and tumour tissues.

**Conclusion:** Scutellarin displays pro-apoptotic properties in liver cancer cells related to the mitochondria apoptotic pathway via regulation the ERKs and AKT signalling.

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## Preparation Technology and Prescription Screening of pH-Sensitive Liposomes

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### Abstract

**Objective:** PH-sensitive liposomes are usually prepared by pH-sensitive biopolymer materials. In low pH medium, changes in ionization of pH-sensitive materials, the stability of lipid bilayer is destroyed and drug is released. It is a functional liposome with intracellular targeting and control of drug release.

**Methods:** Firstly, the preparation of liposomes by thin film dispersion, reverse evaporation-extrusion and freeze-thaw-extrusion methods were compared. Then, pH-sensitive liposome membrane materials were screened. The membrane materials included 1, Dioleoylphosphoethanolamine (DOPE), Cholesteryl hemisuccinate (CHEMS), Oleic acid (OA) and Cholesterol (Chol).

**Results:** Through experiments, we found when the DOPE/CHEMS ratio is 7:3, the average particle size of liposomes is the smallest, reaching  $118.64 \pm 5.56$  nm, and the distribution is uniform. At this time, the surface charge of liposomes is  $-25.4 \pm 0.6$  mV.

**Conclusion:** The Zeta potential is conducive to the long-term storage stability of liposomes. Therefore, Dioleoylphosphoethanolamine and Cholesteryl hemisuccinate were finally determined as the film forming materials for pH-sensitive liposomes, with a DOPE:CHEMS ratio of 7:3.

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## Enhanced siRNA Delivery Using a Targeted Cationic Gene Delivery System

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### Abstract

**Objective:** The purpose of the study was to develop a targeted cationic gene delivery system to enhance siRNA delivery.

**Methods:** A targeted cationic gene delivery system (FA-STA-R8/siRNA) was obtained by choosing palmitate (STA) and arginine (R8) as raw materials, folic acid (FA) as targeting ligand, and siRNA against ribonucleotide reductase R1 subunit as an antitumor drug.

**Results:** Their particle size, stability,  $\zeta$ -potential, siRNA incorporation and cytotoxicity in HeLa cells were measured. Meanwhile, R1 protein silencing and siRNA uptake in HeLa cells were also detected. As a result, 150.0 nm and -25.0 mV of FA-STA-R8/siRNA was obtained. The particle size and  $\zeta$ -potential had no significant changes within 30 days, showing good stability. The structure of FA-STA-R8/siRNA was stable, which was determined by agarose gel electrophoresis experiment. Moreover, FA-STA-R8 showed low cytotoxicity for HeLa cells. The efficacy of FA-STA-R8/siRNA was enhanced by the addition of FA and the R1 protein expression was decreased.

**Conclusion:** In conclusion, siRNA could be efficiently delivered into the tumour cell by FA-STA-R8. FA-STA-R8/siRNA is a potential targeted cationic gene delivery system.

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## Determination of the Content of Amlodipine Besylate Tablets and Its Application in the Treatment of Hypertension

Yao Zhang,<sup>1,2</sup> Yanfang Li,<sup>1,2</sup> Yuting Wang,<sup>1,2</sup> Shiqi Liang,<sup>1,2</sup> Jihuo Tang,<sup>1,2</sup> Mingshi Liu<sup>1,2</sup>

### Abstract

**Objective:** Amlodipine Besylate Tablets is a clinically long-acting antihypertensive drug. In the standards of the State Drug Administration, only the content of Amlodipine Besylate Tablets was detected by HPLC, lack of inspection items of related substances and quality control of impurities. In order to ensure the safety of medication, this project adopts high performance liquid chromatography (HPLC) method compatible with mass spectrometry system to determine the content of Amlodipine Besylate Tablets and related substances, and adopts liquid chromatography-mass potential combination technology.

**Methods:** Separation was achieved on an Agilent TC-C18 reversed-phase column with a mobile phase composed of acetonitrile-3.0 mmol·L<sup>-1</sup> ammonium acetate buffer (pH4.0) (30:70,V/V) at a flow rate of 0.20 mL·min<sup>-1</sup>. The mass transition pairs of m/z 409,1-238.0, were used to detect amlodipine besylate.

**Results:** The linear relationship of benzene sulfonic acid amlodipine is well when the concentration range is between 10 ~ 100 ug /mL ( $r = 0.9998$ ,  $n = 5$ ) while the average recovery was 99.8% and RSD was 0.443%.

**Conclusion:** The method for determining the content of Amlodipine Besylate tablets and the method for detecting related substances thereof are provided, which provides a basis for judging the quality standard of Amlodipine Besylate, and provides a guarantee for the safety of Amlodipine Besylate Tablets.

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## Formulation Screening for Film-forming Gel of Antibacterial Peptide from *Rana Temporaria*

Dongsheng Yang,<sup>1,3</sup> Lihuang Zhong,<sup>1,2,3</sup> Jing Zhang,<sup>2</sup> Yingquan Feng,<sup>2</sup> Lesheng Teng<sup>2</sup>

### Abstract

**Objective:** The purpose of this study was to prepare the film-forming gel of *Rana*-antibacterial peptide.

**Methods:** The antibacterial rate and time of film-forming were used as indicators, and a response surface analysis was used to screen and optimize the formulation by adjusting the content of MC and PVP, and the ratio of *Rana*-antimicrobial peptides to absolute ethanol. Simultaneously, the Colony counting instrument was used to determine the Bacteriostatic ring of preparation.

**Results:** The optimal prescription was: MC 2.8%, PVP 0.8%, antibacterial peptide of *Rana* 57.4%, absolute ethanol 40%, glycerol 1%. The film-forming gel of *Rana*-antibacterial peptide is transparent and yellow with a slight pungent odour, the Bacteriostatic ring of the preparation against *Staphylococcus aureus*, *Escherichia coli*, *Agrobacterium tumefaciens* and *Candida albicans* both are 20.98 mm, 20.29 mm, 20.72 mm, and 20.56 mm respectively. In addition, it can form the film on the skin within 70s upon contact with the skin.

**Conclusion:** The film-forming gel of *Rana*-antibacterial peptide can form a film with high bacteriostatic effect in a short time. This study will play an important role in the research of new formulations of antimicrobial peptides.

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## Preparation, Characterization and *in vitro* Antibacterial Activities of Citral-Loaded Liposome

Peizhou Chen,<sup>1,2</sup> Ying Lin,<sup>1,2</sup> Yinglei Liu,<sup>1,2</sup> Tian Zhong<sup>1,2</sup>

### Abstract

**Objective:** The application of citral as a broad spectrum bacteriostatic substance is limited by its natural hydrophobicity. Liposome represent an efficient approach to improve solubility and thermal stability of hydrophobic molecules. The objective of this study was to develop citral-loaded liposome and investigate its activity against foodborne bacteria.

**Methods:** Citral liposome was prepared using soy lecithin and cholesterol by a hot homogenization method. The dispersion properties of the liposome were characterized by dynamic light scattering. *In vitro* antibacterial activities of the liposome were tested against *Escherichia coli* and *Staphylococcus aureus*.

**Results:** The mean size, polydispersity index, zeta potential, and encapsulation efficiency of the obtained citral liposome were 256.4 nm, 0.247, -43.17 mV, and 61.7%, respectively, indicating a stable encapsulated structure of liposome. The minimum inhibitory concentrations (MICs) of citral-loaded liposome against *E. coli* and *S. aureus* were 62.5 and 15.625 mg/mL, respectively. In contrast, MICs of free citral were 125 and 31.25 mg/mL, respectively, which were significantly higher than those of liposome. In addition, the results showed that the log reductions of the two tested bacteria for liposome were higher than equal dose of free citral in the shake flask assay.

**Conclusion:** In summary, citral-loaded liposome displayed a better stability and *in vitro* antibacterial activities against *E. coli* and *S. aureus* than free citral, and showed potential to be developed as a sustained-release antimicrobial agent to control foodborne bacteria.

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## Preparation and Physical Properties of Gelatin-based film Containing carvacrol/ $\beta$ -cyclodextrin Inclusion Complex

Yinglei Liu,<sup>1,2</sup> Ying Lin,<sup>1,2</sup> Peizhou Chen,<sup>1,2</sup> Tian Zhong,<sup>1,2</sup>

### Abstract

**Objective:** As a typical hydrophobic compound extracted from essential oil, application of carvacrol was limited by its natural insolubility and volatility.  $\beta$ -cyclodextrin as a proper carrier can provide an approach to incorporate carvacrol into hydrophilic polysaccharide-based edible films. The objective of this work was to prepare gelatin-based film containing carvacrol/ $\beta$ -cyclodextrin inclusion complex and investigate its physical properties.

**Methods:** Proper ratio of gelatin powder, carvacrol/ $\beta$ -cyclodextrin inclusion complex, and glycerol were dissolved into distilled water at 40 °C and stirred for 1 h to obtain the film forming solution. Then the solution was poured into glass dishes and air-dried in a fume hood at 25 °C. Tensile strength (TS), elongation at break (E), water vapour permeability (WVP), and soluble solid content (SSC) was determined respectively.

**Results:** The addition of inclusion complex resulted in micro phase separation in the polymer matrix, and then caused a series of changes in physical properties. With the proportion of inclusion complex increased from 0 to 31.25%, TS decreased from 18 to 11 m·Pa, E decreased from 32 to 7%, WVP increased from 5.42 to 8.22 $\times 10^{-8}$  g·mm (h·cm·Pa)<sup>-1</sup>, and SSC increased from 22.13 to 34.92%.

**Conclusion:** In conclusion, gelatin-based film containing carvacrol/ $\beta$ -cyclodextrin inclusion complex was successfully prepared and presented a certain mechanical, moisture barrier and degradable properties. It can be developed as a potential material with drug-loaded function in the industry of food active packaging.

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## Urinary Metabolomics Study of the Therapeutic Mechanisms of Acanthopanax Root Extracts against Alzheimer's Disease Rat Model Using UPLC-Q-TOF-MS

Xin Zhang, Yang He, Hui Zhou

### Abstract

**Objective:** Acanthopanax is a medicinal plant with anti-oxidant properties known for the treatment of several ailments. However, our understanding of the curative mechanisms of Acanthopanax on learning and memory in Alzheimer's disease (AD) is lacking.

**Methods:** Male Sprague-Dawley rats were subjected to A $\beta$ 25-35 peptide injection in the bilateral hippocampus CA1 area. After injection 7 days, the rats were fed with a control diet (distilled water) or a diet containing Acanthopanax root extracts for 30 days. The memory and learning ability tests of all rats were then performed by Morris water maze. Furthermore, a urinary metabolomics study was carried out based on ultra high-performance liquid chromatography coupled with quadrupole time-of-flight mass spectrometry (UPLC-Q-TOF-MS) to screen potential biomarkers.

**Results:** The Morris water maze results show that Acanthopanax root extracts administration significantly improved dysmnesia compared to the control group ( $P < 0.05$ ). A total of 15 metabolites were identified as potential biomarkers of AD. With the multivariate analysis, we found that Acanthopanax significantly acted on hypotaurine metabolism and vitamin B6 metabolism.

**Conclusion:** These findings provide mechanistic insight of Acanthopanax root extracts upon anti-oxidant protection and anti-inflammatory against AD.

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## Screening of Monoamine Oxidase B Inhibitors from Acanthopanax Extracts Using Affinity Ultrafiltration Mass Spectrometry

Yang He, Xin Zhang, Hui Zhou

### Abstract

**Objective:** Monoamine oxidase (MAO) is a flavin-containing enzyme located in the outer membrane of mitochondria. MAO can be divided into two different subtypes, MAO-A and MAO-B, depending on the substrate. MAO-B is responsible for the production of reactive oxygen species (ROS) as a potential target for AD, directly damaging neuronal cells. Acanthopanax is beneficial to qi and spleen, and to replenish the kidney and soothe the nerves. Studies have shown that Acanthopanax can improve the symptoms of patients with neurodegenerative diseases. Therefore, we speculate that Acanthopanax can reduce the activity of MAO-B and improve nervous system function.

**Methods:** In this study, benzylamine was used as a substrate in vitro inhibition assay. To further illustrate the material basis for the inhibitory activity in the components, affinity ultrafiltration mass spectrometry was developed for screening MAO-B inhibitors in Acanthopanax extracts.

**Results:** The half-maximal inhibitory concentration of the Acanthopanax extracts to MAO-B was 1.9 mg/mL, indicating that this component has MAO-B inhibitory activity. Furthermore, six compounds that might bind to MAO-B were screened and identified successfully.

**Conclusion:** The results obtained provide a certain basis for the development of MAO-B inhibitors and the material basis of Acanthopanax to treat degenerative diseases of the central nervous system.

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## Antioxidant Activity of Polyphenol Extracts from Mango

Jingying Li,<sup>1,2</sup> Mingzhi Zhao,<sup>1,2</sup> Liang Wang<sup>1,2</sup>

### Abstract

**Objective:** Mango fruit contains minerals, protein, fat, sugar, carotene and other nutrients. In particular, the core and peel are rich in plant polyphenols, which have strong antioxidant activity and high research and economic value. A new technique for extracting and separating mango polyphenols from mango by-products was studied. This technology can increase the added value and utilization rate of mango in China, effectively promote the deep processing of mango and the actual utilization value of mango resources, and avoid resource waste and environmental pollution.

**Methods:** In this study, ultrasonic extraction method was used to compare the extraction amount of polyphenols from Mango peel and core, and the extraction process was improved. By ultrasonic assisted extraction mango polyphenol process for single factor and orthogonal experiments. The antioxidant activity and stability of mango polyphenols were studied by DPPH and Feton methods.

**Results:** The optimum conditions of ultrasonic extraction of polyphenols from Mango were as follows: ethanol 60%, solid-liquid ratio 1:5, 15 min. In DPPH experiment, when the extraction concentration was 50 µg/mL, the scavenging rate of ·OH was 91.04%, and the antioxidant activity was higher than that of vitamin C. In Feton experiment, when the extraction solution was 700 g/ml, the removal rate of ·OH ion was 96.94%.

**Conclusion:** This experiment established a new technology to extract and separate polyphenols from Mango by-products, which can improve the added value and utilization rate of mango in China.

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## ***In vitro* Activity of Thymol-loaded Solid Lipid Nanoparticles on Controlling Anthracnose (*Colletotrichum gloeosporioides*)**

Liying Wang,<sup>1,2</sup> Yao Zhang,<sup>1,2</sup> Xiaomei Liu,<sup>1,2</sup> Yuanbao Jin<sup>1,2</sup>

### **Abstract**

**Objective:** Thymol is one of the main active compound of thyme, and has shown effectiveness on controlling fungal-caused postharvest decay on many fruit. Solid lipid nanoparticles (SLN), as a kind of excellent hydrophobic molecular carrier, was frequently used in drug delivery and slow-release.

**Methods:** In this work, stearic acid based SLN containing thymol was prepared and its *in vitro* efficiency against anthracnose (*Colletotrichum gloeosporioides*) was studied as well. thymol-loaded SLN was prepared with stearic acid, tween 60, pentasodium tripolyphosphate and thymol by a homogenization method. The petri dishes were incubated at 20 °C for observation.

**Results:** For the excessive fungus incubated on the PDA in whole petri-dish (90 mm of diameters), the thymol-loaded SLN presented a remarkable of antifungal capacity, which completely inhibited the fungus growth. In contract, the same dose of pure thymol exhibited a good effect in the first 3 days but the fungus recovered gradually after 4 days.

**Conclusion:** In summary, the thymol-loaded SLN maintained the releasing process for more than 12 days, which is significantly longer than the same dose of pure thymol. On this account, it is suggested that thymol-loaded SLN exhibited a better effect on fungus control than the direct use of thymol.

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## Synthesis and Permeation Promoting Effect of Phenylalanine ester hydrochloride as a Small Molecular Biological Permeation Enhancer

Xianhe Wang,<sup>1</sup> Ying Li,<sup>1</sup> Yunting Wang,<sup>2</sup>

### Abstract

**Objective:** The purpose was to employ P-toluene sulfonyl chloride (PTSC) as a catalyst to synthesise a series of phenylalanine ester hydrochlorides. The synthesis process of L-phenylalanine methyl ester hydrochloride ((L-PM) was optimized by response surface method. Meanwhile, L-PM as the biological penetration enhancer was utilized to investigate the effect of caffeine and acyclovir on transdermal permeation. This study also investigates the effect of stereo configuration and dosage of L-PM on enhancing drug penetration.

**Methods:** Phenylalanine ester hydrochlorides were synthesized using phenylalanine, alcohol (C1-C4) and PTSC through the one-pot reaction. Meanwhile, the saturated acyclovir solution or 1% caffeine solution containing L-PM would be prepared as the test solution, while saline served as the acceptor. Subsequently, the test was performed on pig skin at 337.5°C, and the acceptor was taken at different time points for liquid phase analysis.

**Results:** The results of process optimization show that the optimum reaction conditions: reaction temperature 76.80°C, reaction time 12 hours, n(L-try-ptophan):n (PTSC) 0.15:1.0. The results of transdermal penetration test show that L-PM had a better effect the acyclovir and the caffeine. The dosage of 0.5% L-PM had the best penetration effect on acyclovir. L-PM could significantly promote the percutaneous absorption of acyclovir either alone or the combination of L-PM and menthol.

**Conclusion:** In conclusion, PTSC can increase the yields of the products and reduce the cost. This study also shows that the stereo configuration and dosage of L-PM has noticeable effect on enhancing drug penetration.

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## Formulation of Brintellix<sup>®</sup> Pharmaceutical Nano-Cocrystals and Evaluation of Bioavailability

Xiaoming Zhang,<sup>1</sup> Dongsheng Yang,<sup>2</sup> Yumeng Liu<sup>2</sup>

### Abstract

**Objective:** The objective of this investigation was to prepare pharmaceutical nano-cocrystals of two Brintellix<sup>®</sup> to improve its solubility and bioavailability.

**Methods:** The two novel pharmaceutical nano-cocrystals were successfully prepared via a sonochemical approach using the combination of multiple-solvent selection and the surfactant SDBS (sodium dodecyl benzene sulfonate), which are composed of valsartan as the API with 3,5-dihydroxybenzoic acid (nano-cocrystal 1) and m-aminobenzoic acid (nano-cocrystal 2).

**Results:** The average particle size of nano-cocrystals (1-2) was 86 nm and 64 nm, respectively. An in vitro release study revealed a significant release rate enhancement for nano-cocrystals (1-2) as compared to valsartan. Comparative oral bioavailability study in rats indicated significant improvement in C<sub>max</sub> by 1.77-fold and 1.96-fold, in oral bioavailability (AUC 0 – ∞) by 2.55-fold and 2.23-fold, respectively.

**Conclusion:** In this study, we used the sonochemical method to synthesize pharmaceutical nano-cocrystals of Brintellix<sup>®</sup> (nano-cocrystals 1-2). Nano-cocrystals possessed excellent performance both in vitro and in vivo evaluations. Thus, nano-cocrystal is an effective way for improving dissolution rate and bioavailability of poor soluble pharmaceutical.

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## Design and Research of Automatic Control System for Freeze-dried Sterile Antibiotic Production Line

Lan He, Xianwen Liang, Lepeng Song

### Abstract

**Objective:** The level of sterility and quality of the antibiotic production line directly determines the quality of the antibiotic drug, making the quality control the utmost concern. Conventional antibiotic control schemes have come up to the bottleneck concerning the production and maintenance of modern antibiotics. An automatic control system is introduced to the antibacterial production line, with a particular focus on the self-adaptive fuzzy PID control to ensure the precision of the control parts. The experimental results showed that the anti-bacterial production effect was achieved by means of similar complete isolation technology.

**Methods:** An automatic control system was developed for sterile antibiotic production line. The control system has the following system components: feed control including how to programme the adaptive fuzzy PID algorithm, the communication between the PLC and the host computer, and the interface display of the upper computer program. Experiments showed that the maximum overshoot of the control system was below 2.6°C, taking 14 minutes for adjustment, conforming to the medical national standard verification.

**Results:** The application of the proposed may greatly cut down the participation of on-site personnel, minimizing the bacterial contamination caused by human factors. As a result, both the productivity and the qualified rate of products would be brought to a higher level.

**Conclusion:** Supported by the automatic control system, both in theoretical and technological aspects, the antibacterial production line effectively cracked down the issues on product sterility and significantly promoted the quality of products.

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## A Modified Methodology for Fuzzy Adaptive Control of hexahydroxy melamine

Yuehui Zhang, Yongkang Chen, Lepeng Song

### Abstract

**Objective:** Hexahydroxy melamine is widely used in agricultural work. For the real-time production process, however, immeasurable loss may be suffered by enterprises if the reaction time, material reaction temperature, and ratio of various raw materials fails to be reasonably controlled, which can lead to a large number of defective products or waste products. From the perspective of control system, multi-sensor technology is adopted to realize high-efficiency and low-consumption production of hexa-hydroxy melamine. Much less environmental pollution is in response to more corporate profits.

**Methods:** This fuzzy adaptive control system is divided into four parts: the first part and the second part both use the PID loop to control the formaldehyde and melamine feed, so that the liquid level value is kept stable in the production range. The third part is to transport the precisely matched melamine material to the reaction tank and mix with the formaldehyde solution to provide perfect conditions for the reaction process. The fourth part uses the fuzzy adaptive function in control of the temperature inside the kettle, ensuring that the accurate and stable reaction obtained large-volume, high-quality products.

**Results:** The experiment proves that the fuzzy adaptive control system proposed for hexahydroxy melamine realized precise control of pipeline flow, liquid level in the kettle, temperature of mixed liquid. This fuzzy adaptive control error can be controlled within 5%, and the next days production would be increased by more than 30%.

**Conclusion:** Regarding the low quality production, this proposed fuzzy adaptive control provides a theoretical support for the effective production of hexahydroxy melamine.

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## Analysis of Rural Pupils' Physical Health Strategies of Integrating Society, School and Family

Yong Shi

### Abstract

**Objective:** Increasing obesity rates among students between the age groups of six to twelve years have become major influencing factors for various metabolic disorders. Therefore, effective approaches for improving physical health of the youth have attracted social attentions.

**Methods:** Literature review, questionnaire survey and logical analysis were applied for studying youth's physical health.

**Results:** With the search of electronic literature and books, we sorted out and concluded rural pupils' physical health status and research results. According to requirements of the study, we set up rural pupils' physical health questionnaire and analyzed and guided the subjects included, to ensure authenticity and scientific assessment of the collected data.

**Conclusion:** In this study, we established a three-dimensional education network integrating school, family and society and a proper platform suitable for rural students to exercise. The aim was to create an exercise atmosphere which would be acceptable to rural pupils. To avail success, causes for not exercising had to be determined. The reasons for poor physique and general health were identified and required intervention noted. Provision of teachers for physical training who should be proactive in contributing their ideas and exerting their efforts to improve results and effectiveness and enhance endurance, awareness and physical exercise habits was considered essential.

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## Strategies for Promoting Youth Sports Health through Social Media

Yong Shi

### Abstract

**Objective:** As an important part of China's health strategy, youth health is related to the future of the country and nation. Promoting the healthy development of young people is also the key to the great rejuvenation of the Chinese nation. For teenagers, the embedding of various life scenes by social media constructs an immersive communication environment, which is closely related to their physical and mental health.

**Methods:** Through the methods of literature review, expert interview, questionnaire survey, experiment and mathematical statistics, this paper studies the effect of social media on sports health of teenagers.

**Results:** The acquisition of youth sports data through social media has the following three meanings: first, it can quantify the overall sports status and level of the youth group in the national health campaign. Secondly, it can monitor the exercise habits of teenagers. Thirdly, it can predict and intervene youth sports.

**Conclusion:** Sports data of teenagers on social media are both fragmented and disorganized, which cannot directly explain the health condition of teenagers, let alone provide valuable suggestions for their health. Through the analysis of the movement data of college students, the sports items, sports demands, sports consumption and sports social desires of college students in this city can be precisely mastered, so as to realize the precise push of personalized information.

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## Protection of Bone Marrow Mesenchymal Stem Cells against Ovarian Injury in Rats Induced by Injection of Cyclophosphamide

Lian Chun,<sup>1</sup> Fulin Wu,<sup>2</sup> Batu Buren<sup>2</sup>

### Abstract

**Objective:** In this paper, the protective effect of bone marrow mesenchymal stem cells on ovarian injury in rats induced by injection of cyclophosphamide was investigated by selecting rats to establish groups.

**Methods:** A total of 78 rats were selected for this study. Sixty rats were randomly selected, and the rats were randomly divided into the ovary injury group (DG group), the blank group (NG group), and the ovary injury/bone marrow hepatocyte transplantation group (D/T group), with 20 rats in each group. The remaining 18 rats were selected as bone marrow mesenchymal stem cell tissue donor.

**Results:** The rat bone marrow mesenchymal stem cells were isolated, purified and cultured, and the rats were anaesthetized with 10% chloral hydrate. Bone marrow mesenchymal stem cell transplantation. Foetal bovine serum was added with 0.125% trypsin to digest the cells. Repeat blow habit. To establish a rat model of premature ovarian failure by intraperitoneal injection of cyclophosphamide at 60mg/kg. In the ovarian injury group (DG group), no treatment was performed after ovarian injury.

**Conclusion:** The transplantation of bone marrow mesenchymal stem cells can repair and protect the ovary of rats induced by injection of cyclophosphamide.

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## The Effects of Baduanjinon Physiological Indicators of Health of Middle-Aged and Elderly People

Wen Su, Bing Bai, Xiaoxu Wang

### Abstract

**Objective:** Middle-aged and elderly people were selected as research objects to record the influence of Baduanjin, on their physical health by recording the relevant changes. Physiological indicators were also explored.

**Methods:** The research subjects included 210 local ordinary middle-aged and elderly people. There were 105 males and 105 females with an average age of  $60.3 \pm 3.2$  years. Both the groups were divided into middle-aged and elderly groups according to the range, between 45-60 and 61 - 70 years old respectively.

**Results:** All subjects were tested for physical health indicators prior to the start of the training. At the end of baduanjin aging exercise for three months, the subjects' physiological indicators of physical health were tested again. The selected indicators in this study included morphological indicators, including height, weight, waist circumference, hip circumference, chest circumference, etc. Functional indicators, including blood pressure, heart rate, lung capacity, lower limb strength, grip strength, standing on one leg with eyes closed, sit-down flexion, etc.

**Conclusion:** Baduanjin is conducive to promoting the health of middle-aged and elderly people, improving their respiratory system function, human strength, human flexibility, and human balance ability.

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## The Influence of Sports Thoughts of Prominent Figures in Modern China on the Formation of Healthy Strategy

Bing Zhang

### Abstract

**Objective:** Healthy China 2030 will further strengthen people for physical exercise profound understanding. Its happy movement, happy life, physical and mental health, improve quality, master skills, enhance friendship and other aspects of its versatility is deeply concerned.

**Methods:** Using the literature search method and Questionnaire survey method, Induction and other relevant issues were analysed.

**Results:** CAI Yuanpie's thought is extremely rich and forms a complete system of ideology. Tao Xingzhi's thought of sports concept put forward "three equal emphasis on education, health being the first"; Combining sports with health; Combination of sports and military; Sports and social practice, MAO Zedong attaches great importance to the development of undertakings of physical culture and sports life, pay attention to the all-round development of people, especially teenagers' health. Deng Xiaoping sports thought attached great importance to the popularization of mass sports and the development of competitive sports, emphasizing the diversity of sports functions.

**Conclusion:** Deng Xiaoping's sports ideology attaches importance to lay a foundation of mass sports, attention to the development of competitive sports, the good school sports development. Deng Xiaoping's thought about sports for the development of our country sports enterprise has the leap-forward significance.

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## Effect of continuous training on blood glucose monitoring in people with Diabetes Mellitus

Yuanfang Liu,<sup>1</sup> Xiang Liu,<sup>2</sup>

### Abstract

**Objective:** Continuous training should be carried out to improve the ability of people with diabetes to control blood glucose and prevent the consequent complications.

**Methods:** From 2017 to 2018, 200 patients with diabetes were admitted to the municipal hospital. Of these 100 patients with cerebral palsy and mobility impairment were excluded. The selected 100 patients were divided equally into two groups by double-blind random method. In the experimental group, continuous training and was carried out for one hour every day (randomly selected during the working time). The control group received no formal training. After 30 days of continuous training, the blood glucose of the two groups was measured.

**Results:** Blood glucose of 100 patients with diabetes was measured by blood glucose analyser, and the results were statistically analysed. The results showed that after 30 days of continuous training, the blood glucose level of patients with diabetes was significantly lower than that of the control group ( $P < 0.05$ ).

**Conclusion:** This study showed that continuous training on blood glucose monitoring has a significant positive effect on blood glucose control in patients with diabetes mellitus Other new methods of monitoring to improve the control need further studies.

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## The Model of Forecasting the Incidence of Influenza Based on Multi Hidden Layer Back Propagation Neural Network Meteorological Data Mining

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### Abstract

**Objective:** Influenza is a serious threat to human health and life, there are no effective prevention and treatment measures. In order to predict the incidence of influenza and prevent the disease, a model based on multi hidden layer Back Propagation (BP) neural network weather data mining is proposed.

**Methods:** The data mining model is optimized by multi hidden layer BP neural network and wavelet analysis, in order to avoid the interference of data and predict the meteorological factors that affect the influenza disease; the collaborative multi classifier algorithm is introduced for more accurate data mining.

**Results:** The proposed method of high altitude meteorological data mining based on BP neural network improves the depth of data mining, and also plays an auxiliary role in data feature extraction, which can effectively predict the meteorological factors affecting influenza.

**Conclusion:** The designed meteorological data mining model can effectively solve the problem of data interference, improve the degree of data mining, and can be used to predict the meteorological factors affecting influenza disease, provide preliminary reference for the prevention of influenza, so as to reduce the influenza concurrency rate to a certain extent.

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## Big Data Mining Method of Anatomy Teaching of Cervical Nerve Root Syndrome under Vision Sensing Technology

Yu Gao,<sup>1</sup> Shifeng Qiao<sup>2</sup>

### Abstract

**Objective:** It is of great significance to explore the teaching resources for the treatment of cervical radicular syndrome. A big data mining method for anatomy teaching of cervical nerve root syndrome based on vision sensing technology is proposed.

**Methods:** The data of cervical vertebrae image and reconstruction teaching were arranged according to the confidence, and the big data set of reconstruction teaching was generated. The vision sensing technology was introduced to analyze the big data of reconstruction teaching, and the big data mining model of reconstruction teaching was constructed. The frequent items of pressure factors were set beside the tracheoesophagus, the medial sternocleidomastoid muscle and the posterior cervical spinous process, and the clustering association rule algorithm was used to form the big data set of reconstruction teaching. In order to realize the teaching big data mining, we extract the anatomical teaching big data from all item subsets, unify all subset attributes in one space for Boolean mapping, calculate the distance and iteration.

**Results:** The abnormal data in the big data of anatomy teaching of cervical nerve root syndrome were excluded, which made up for the deficiency of more scanning databases, more iterations and more candidate sets.

**Conclusion:** It can effectively avoid the data overlapping in the process of big data mining in the anatomy teaching of cervical nerve root syndrome, and effectively carry out the anatomy teaching of cervical nerve root syndrome.

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## The Impact of the Precise Control of the Intelligent Air Conditioning of New Energy Vehicles on the Respiratory System

Wenzhe Ji

### Abstract

**Objective:** The air conditioning function is no longer limited to refrigeration and heating, gradually adding air filtration and other functions. In order to meet the needs of new energy vehicle customers for respiratory system health, the impact of new energy vehicle intelligent air conditioning precision control on respiratory system is analysed.

**Methods:** The characteristics of air pollutants inside and outside the new energy vehicle were analyzed. Combined with the statistical analysis method, the clinical characteristics and risk factors of many diseases including persistent cough, persistent expectoration, wheezing, asthma, bronchitis and so on were obtained. The probability and characteristics of respiratory system diseases were analysed by single factor. According to the new energy vehicle intelligent air conditioning operation mode, the judgment was made the comfort in the car and matched with the precise control scheme of intelligent air conditioning, and different protection strategies are put forward.

**Results:** In this statistical analysis, the patients all had time rhythm and seasonality. The most serious degree was mild, and the influence on respiratory system was more serious; the effect of plasma air purification was strong, which could realize the effective filtration of harmful gases.

**Conclusion:** As the environment that people contact most closely and frequently, the environmental factors in the vehicle have certain influence on the health of human respiratory system. It is necessary to control the intelligent air conditioning of new energy vehicles accurately to reduce the pollution in the vehicle, so as to protect the health of human respiratory system.

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## The Influence of Piano Music Appreciation on the Psychological Intervention of College Students' Anxiety

Qiming Zhang, Feng Yu

### Abstract

**Objective:** To explore the psychological intervention effect of piano music appreciation on college students' anxiety.

**Methods:** From January 2018 to January 2019, 120 college students with anxiety disorder admitted to our hospital were selected as the research objects. According to different intervention methods, 120 patients were randomly divided into control group and observation group, 60 patients in each group. The routine intervention method was used in the control group, and the group intervention with piano music appreciation as the core was added in the observation group for two months on the basis of the nursing in the control group.

**Results:** The results show that in the aspects of social communication, emotional performance, learning behaviour and somatization, the psychological state of the students after the psychological intervention of piano music appreciation is better than that before the intervention, and their depression and anxiety are generally significantly improved, which is better than the control group.

**Conclusion:** The psychological intervention of piano music appreciation can improve the anxiety of college students to a certain extent, which has a certain value of popularization and application.

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## The Influence of Commercial Medical Insurance on the Payment Structure of Patients with Major Diseases

Ying Cui

### Abstract

**Objective:** With the continuous revision and improvement of China's commercial medical security system, more and more people pay attention to the rationality and feasibility of medical expenses for patients with major diseases. This paper analyses the payment structure of urban workers' commercial medical insurance patients in the cost level of malignant tumour and discusses the influencing factors of the payment structure.

**Methods:** Effective statistics were made on the hospitalization expenses and payment structure of malignant tumour patients in the commercial medical insurance of a third-level hospital in a city from 2017 to 2019, and then a diversified regression analysis was performed on the factors affecting the payment structure.

**Results:** With the adjustment and improvement of the commercial medical insurance system, the proportion of personal payments in hospitalization costs has gradually decreased. On the contrary, the proportion of commercial insurance funds has gradually increased, and the hospitalization costs and payment structure are affected by the clinical characteristics, demographic characteristics, and commercial insurance payment policy of malignant tumours.

**Conclusion:** by the rational control of payment influencing factors, promoting the health education of the insured, improving the commercial insurance policy and the structure of the medical team, the rational use of medical and health resources and decompression of financial burden of patients with major diseases have been achieved.

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## Financial Burden and Influencing Factors of Alzheimer's Disease Patients

Han Yan

### Abstract

**Objective:** This study discusses the financial burden and influencing factors of Alzheimer's disease (AD) patients, and uses this as a reference to reduce the financial burden on patients' families.

**Methods:** A total of 168 people with confirmed Alzheimer's disease were taken as research subjects. The study was conducted in cluster sampling, and their financial burdens was studied by means of questionnaires. Meanwhile, analysis of variance and t-test were used to conduct linear regression analysis on the influencing factors of financial burden of Alzheimer's disease patients.

**Results:** The median annual direct medical expenses for AD patients was 7,763 Yuan, and the median of annual total medical expenses was 15,804 Yuan. A single factor analysis shows that in addition to educational level, economic origin, and marital status, various factors at other levels have a certain degree of impact on costs. By linear regression analysis, we could gauge that the patient's age (partial regression coefficient is 577.3,  $P=0.01$ ), gender (partial regression coefficient is 695.7,  $P=0.03$ ), and cognitive function (partial regression coefficient as -1408.5,  $P<0.01$ ) and other influencing factors all had a certain impact on the level of the financial burden.

**Conclusion:** Patients with Alzheimer's disease have a relatively heavy financial burden. The age at which the patient develops, the improvement of cognitive ability, and the severity of the illness are the main factors influencing the financial burden.

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## Construction of English Translation Quality Assessment Model for Cancer Treatment Materials

Yongxiang Hu,<sup>1,2</sup> Ying Zhang<sup>2</sup>

### Abstract

**Objective:** With the linear increase of the relationship between cancer incidence and mortality, the problem of cancer treatment has attracted people's close attention. This paper discusses the influence of English translation quality assessment model for cancer treatment materials on cancer patients.

**Methods:** This study was done to analyse the normalization of words, standardization of Chinese interpretations, and concrete treatment of acronyms in the evaluation of English translation quality of gastric cancer treatment materials, identify Chinese interpretations of English words, improve search quality, and conduct linear analysis of relevant influencing factors in the form of highly combination of theoretical connotation and realistic practice.

**Results:** The construction of English translation quality assessment model for cancer treatment materials was positively related to the influence of external factors. Standardization of translation quality, improvement of information search ability, the enhancement of identification ability and professional English level and other factors have a certain degree of influence on its model construction.

**Conclusion:** There is a positive correlation between the establishment of an English-Chinese bilingual vocabulary database, improvement of translation quality and efficiency, strengthening of the foreign language level of the medical team and the construction of English translation quality assessment model for cancer treatment materials.

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## Comprehensive Intervention Analysis of Long-Distance Travel on Children with Autism

Song Zheng, Jing Zhao, Qiang Guo

### Abstract

**Objective:** Long-distance travel is a new field of comprehensive intervention for children with autism, and this study was done to analyse the value of long-distance travel in the comprehensive intervention of children with autism.

**Methods:** The children with autism were divided into observation group and control group for comprehensive intervention treatment, including 44 patients in observation group and 42 patients in control group. The two groups of children with autism before treatment, 3 months of treatment, and 6 months of treatment are scored on the Behavioural Scale (ABC), so as to conduct a comprehensive comparative analysis of psychosocial educational rating scale (C-PEP) for related developmental disorders and autism treatment assessment scale (ATEC) score.

**Results:** The data of the two groups after 3 and 6 months of treatment showed that the ABC and ATEC scores were significantly lower than that of those before treatment (both  $P < 0.05$ ), and the ABC and ATEC scores of the observation group were relatively lower than those of the control group (all  $P < 0.05$ ).

**Conclusion:** The combined effect of long-distance travel and comprehensive intervention on children with autism is significantly better than that of pure comprehensive intervention, which has a certain degree of impact on the clinical application value of children with autism.

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## Information Push of Clinical Diagnosis and Treatment of Major and Difficult Diseases in the Library

Cuiping Qin

### Abstract

**Objective:** With the development of network information facilitation, it has become an important topic for the library to push clinical diagnosis and treatment information services for patients with major and difficult diseases with its rich collection resources. This study analyses the research on information push of clinical diagnosis and treatment of major and difficult diseases in the library.

**Methods:** Based on the special needs of patients with cerebral infarction disease, according to the patient's own age, occupation, education and family conditions, with the help of collection resources and network technology, it can send information diagnosis and treatment to patients with cerebral infarction disease or cooperate with doctors to get involved.

**Results:** It is of great practical significance to help patients with cerebral infarction disease and their families to perform medical services by pushing clinical diagnosis and treatment information and share the results of modern medical resources.

**Conclusion:** Research on information push of clinical diagnosis and treatment of major and difficult diseases in library can improve the survival and quality of life of patients with major diseases to a certain extent, extend the life span of patients with diseases and even improve their condition greatly.

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## Family of children with autism, in need of comprehensive support: A Qualitative Study in Iran

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### Abstract

**Objective:** Considering the increase of Autism Spectrum Disorder (ASD), its chronic and complex nature, and the involvement of parents with multiple problems in living with autistic children; one of the research priorities in Iran is to determine their social support needs based on existing evidence. Therefore, this study aims to explain the social support problems of parents of children with autism by exploring their experiences.

**Methods:** Participants of this qualitative study were parents of children with autism referred to "Yas" and "Nahal" Rehabilitation Centers in Arak and Ahvaz, Iran. A total of 8 parents were enrolled in the study using purposeful sampling method. Data were collected by semi-structured interviews and field notes and analyzed using MAXQUDA10 software.

**Results:** The results of the data analysis led to the emergence of three main categories "Public unawareness", "lack of access to services" and "perceived support needs", which outlines the different dimensions of social support problems for the family of children with autism.

**Conclusion:** The results of this study revealed that the administrators and policy-makers for autism related services, more than ever need to plan, organize and implement programmes to raise public awareness about autism, reduce barriers to access to services and meet the support needs of families of children with autism at societal level to improving their well-being at the national level.

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