# Selected Abstracts

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# International Conference on

# Biomedicine and Pharmaceutics

This supplement is only for presented abstracts selected from the Nineth International Conference on Biomedicine and Pharmaceutics (ICBP2021), due to Covid-19 pandemic across the whole world, virtually held both Zhuhai & Zhengzhou, China during Sep.15-17, 2021.

This conference provided an enabling platform for innovative academics, engineers and industrial experts in the field of Biomedicine and Pharmaceutics to exchange new ideas and present research results. The conference also discussed the trend of academic development and helped to bride the R&D results with industry. We hope that this conference could make significant contribution to the update of knowledge about these latest scientific fields.

For this supplement, a considerable number of abstracts within the topic were received, out of which 49 abstracts were finally accepted after rigorous review. The submissions are thus formally refereed, in the final format and would not be published elsewhere. The committee of ICBP would like to place on record their sincere thanks to the publisher and IJPS for this very special opportunity to contribute to a special supplement. The committee wish to thank all the referees for their kind support and help.

The Organizing Committee of ICBP

**Track-1: PHARMACOLOGY AND THERAPY**

1

# Small Ribonucleic Acids Related to Obesity in Mice

YUE LIU[1], H. LI AND Z. D LI[2]*

College of Biological and Food Engineering, Jilin Engineering Normal University, Changchun, Jilin 130052, [1]School of Chemistry and Life Sciences, Changchun University of Technology, Changchun, Jilin 130012, [2]Measurement Biotechnique Research Center, Jilin Engineering Normal University, Changchun, Jilin 130052, China, *E-mail: jlennlizd123@163.com

In recent years, people's living standard is continuously improving, while the proportion of obese or overweight people is also gradually increasing. Obesity is one of the most important chronic diseases endangering human health in today's society. It is caused by a series of diet regulation and energy metabolism disorders influenced by specific biochemical factors, leading to common nutritional disorders. In this study, we have successfully established a mouse obesity model and developed a systematic research platform based on this model to reveal the expression profiles of different subtypes of small ribonucleic acids in different experimental mouse group. We used BGISEQ-500 technology to enlarge the raw data and to remove the dirty tags. The clean tags exceeded 70 % on average, which improved the performance of high-throughput sequencing of this study. With this calculation method, we applied novel small ribonucleic acid prediction, small ribonucleic acid expression analysis and small ribonucleic acid target prediction analysis in order to identify the specific roles of small ribonucleic acids in the regulatory effect on fat metabolism. We compared the expression levels of different small ribonucleic acid subtypes, including piwi-interacting ribonucleic acids and micro ribonucleic acids and identified a group of differentially expressed small ribonucleic acids in both the mouse obesity model and control groups. Our results showed that most of these small ribonucleic acids participate in lipid metabolism, suggesting that small ribonucleic acids play significant roles in obesity and related pathogenesis. According to the differential expression profiles of each group and their obesity-related phenotypes, we screened out a group of small ribonucleic acids related to obesity and performed functional enrichment analyses, i.e., gene ontology and Kyoto encyclopedia of genes and genomes pathway. Our results have demonstrated that the interference of small ribonucleic acids regulates obesity, revealing the potential therapeutic mechanism of obesity and functioning in the pathogenesis of obesity. It is speculated that the studies of these obesity-related small ribonucleic acids set the foundation of studying new targets for obesity treatment and provide new ideas and methods for future research and clinical treatments of obesity.

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2

# Regulatory Effect of Phosphatidylinositol-3-Kinase/Protein Kinase B/Mammalian Target of Rapamycin Signal in Collagen-induced Arthritis Rats by Jinwujiangu Capsule

QIUYI WANG, X. M. YAO, YING HUANG, P. ZENG, DAOMIN LU, QIAOYI NING, L. HOU, HUI XU, FANG TANG, LINA XIAO AND W. K. MA*

Department of Rheumatology and Immunology, The Second Affiliated Hospital of Guizhou University of Traditional Chinese Medicine, Guiyang, Guizhou Province 550001, China, *E-mail: fsmymwk@163.com

To investigate the effect of Jinwujiangu capsule on phosphatidylinositol-3-kinase/protein kinase B/ mammalian target of rapamycin signaling pathway in collagen-induced arthritis rats. Ninety female Wistar rats were randomly divided into six groups, 15 rats in each group which were blank control group,

collagen-induced arthritis control group, Leflunomide control group and low, medium, high dose group of Jinwujiangu capsule, respectively. The collagen-induced arthritis model was established in five groups except blank control group. The rats were treated with medicine on the 7th d of model building, monitor the joints swelling rate and arthritis improvement score of each group during the treatment. The rats were killed on the 28th d and the pathological changes of joint using hematoxylin and eosin staining method were observed. The autophagy in synovial tissue was observed by transmission electron microscopy, the Western blot was explored to test the expression of phosphorylated-phosphoinositide 3-kinase, phosphorylated-protein kinase B and phosphorylated-mammalian target of rapamycin and the expression of Ras homolog enriched in brain gene was detected by real-time polymerase chain reaction. Compared with blank control group, the joint swelling rate and arthritis improvement score in each model group were markedly increased significantly ($p<0.01$). Large number of inflammatory cells infiltration was able to be seen in the synovial stroma of the joint and the articular cartilage was rough and uneven. Compared with the model control group, the joint inflammation index was decreased, the swelling rate of joint was alleviated and the pathological structure of joint was improved of collagen-induced arthritis rats in Jinwujiangu capsule treated group. The transmission electron microscopy results showed that there were relatively obvious autophagosomes and autophagic lysosomes in the synovial tissue of collagen-induced arthritis rats in Jinwujiangu capsule treated group. The expression of phosphorylated-phosphoinositide 3-kinase, phosphorylated-protein kinase B, phosphorylated-mammalian target of rapamycin protein and Ras homolog enriched in brain were increased in the collagen-induced arthritis control group ($p<0.01$) compared with the blank control group. The expression of the above-mentioned proteins or gene was decreased in different degrees of Jinwujiangu capsule treatment groups compared with the collagen-induced arthritis control group ($p<0.01$ or $p<0.05$). There was no significant difference in the expression of Ras homolog enriched in brain and phosphorylated-protein kinase B protein in middle dose group of Jinwujiangu capsule compared with the control group of leflunomide control group ($p>0.05$). However, the effect of high dose group on the down-regulation of phosphorylated-phosphoinositide 3-kinase, phosphorylated-protein kinase B, phosphorylated-mammalian target of rapamycin protein and Ras homolog enriched in brain was more obvious ($p<0.01$). The therapeutic mechanism of Jinwujiangu capsule on collagen-induced arthritis rats may be related to blocking the activation of phosphatidylinositol-3-kinase/protein kinase B/mammalian target of rapamycin signaling pathway.

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3

# The Characterization of Polysaccharides Isolated from *Paecilomyces hepiali* and its Hypolipidemic Effects in Diet-Induced-Obese Mice

YANZHEN WANG, D. YANG, LANYING WANG, ZHUOYI OU AND FANXIN MENG*

School of Pharmacy and Food Science, Zhuhai College of Science and Technology, Zhuhai 519000, China, *E-mail: mfx@zcst.edu.cn

As a metabolic disease characterized by the over-high levels of blood lipids afflicts people worldwide

leading mortality. Accordingly, polysaccharides obtained from fungi help to suppress the hyperlipidemia and the *Paecilomyces hepiali* mycelia have been reported to show the regulatory effects on blood sugar and lipids. In this study, the polysaccharides were purified from the *Paecilomyces hepiali* mycelia and systematically characterized. Its hypolipidemic activities were analyzed in the diet-induced-obese mice. The polysaccharides purified from the water extraction obtained *via* the submerged fermentation mycelia and entitled PHPS-12. Nuclear magnetic resonance and Fourier transform infrared spectroscopy were performed to analyze the structure of PHPS-12. The diet-induced-obese mice were established and intragastrically administrated with vehicle agent (normal saline) (n=12) and 20 mg/kg of PHPS-12 (n=12) for 8 w once a day. The levels of blood lipids and related levels of proteins were analyzed *via* enzyme-linked immuno sorbent assay and Western blot. The pathologic analysis was detected by hematoxylin-eosin staining. PHPS-12 strongly suppressed the serum levels of triglyceride, total cholesterol and low density lipoprotein, and enhanced the serum levels of high density lipoprotein in diet-induced-obese mice. PHPS-12 showed no effects on spleen and heart, but strongly protected the livers analyzed *via* hematoxylin-eosin staining. In liver tissues, PHPS-12 strongly regulated the levels of nuclear factor-E2-related factor 2 and its downstream proteins including superoxide dismutase and heme oxygenase. The purified Paecilomyces hepiali polysaccharide with the (1→2)- and (1→6)-glycosidic bond structure showed significant effect on the hyperlipidemia in diet-induced-obese mice. Further study showed that these effects were related to the regulation on oxidative stress, especially through nuclear factor-E2-related factor 2 signaling.

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# The Influence of Baduanjin on the Physiological Indexes of the Middle-Aged

GONG, GUANNAN ZHANG*, YUAN LI AND DAN YANG

Hebei Institute of Sports Science, Shijiazhuang, Hebei 050011, China, *E-mail: lihong4911@sina.com

Since the beginning of the new century, domestic scholars have conducted in-depth studies on the fitness function of Baduanjin from various aspects and made a series of achievements, which has played a promoting role in promoting the further popularization of Baduanjin. Through reading analysis, it is found that most of these studies use modern science and technology to summarize the research results of the fitness function of Baduanjin and further explore how to develop means. Through the comparative analysis of the relevant physiological indicators before and after the exercise of Baduanjin, the fitness value of Baduanjin is fully affirmed. Use literature review method, analyzes the domestic scholars on qigong eight period of jin the fitness function of research, the study found that the use of modern means of science and technology, more extensive use of experimental testing method, mathematical statistics method, observation method and empirical research method, discusses the eight jin to college students, middle-aged and old people fitness, the healthy heart effect, study the eight period of jin insomnia for university students and the clinical adjuvant therapy effect of diseases such as diabetes, migraine, provides eight brocade is beneficial to people's physical and mental health more intuitive scientific basis; the future research direction of baduanjin fitness function is predicted. Practicing qigong eight brocade, significantly increased the elderly onset of power quality, balance ability, joints and the flexibility of nervous system,

improve the function of the respiratory system, elderly group male and female of serum total cholesterol concentration significantly below before exercise, concentration of serum low-density lipoprotein was very significantly lower than before exercise, middle-aged male, the female serum high-density lipoprotein concentration significantly higher than that of before exercise, exercise elderly group man serum high-density lipoprotein concentration is significantly higher than before. At 10 w after training, the total serum nitric oxide and superoxide dismutase were significantly higher than that before training, while the total serum malondialdehyde was significantly lower than that before training. After 3 mo of exercise, the indicators reflecting the elderly's intelligent physiological age, such as motion response, counting, tracking operation average error, etc., were significantly improved. The indicators of number symbol and two-digit digit span were significantly improved. Practicing Baduanjin can obviously improve the upper and lower limbs strength quality, respiratory system function, joint flexibility, balance ability and nervous system flexibility of middle-aged and elderly people. Shang Qinghua research such as the eight jin retired teachers in colleges and universities the influence of body function and quality, the conclusion shows: Eight brocade retired teachers in colleges and universities, (MBI), weight (WHR), systolic pressure, diastolic blood pressure (female) in succession, crook proneness and close my eyes standing on one foot has a significant positive effect, for waist circumference, vital capacity, grip strength, on physiological indexes such as body shape of middle-aged and elderly people, and mainly use empirical research methods such as experimental test method and mathematical statistics method. The results show that Baduanjin has a positive effect on the physical quality of middle-aged and elderly people, such as strength, flexibility, flexibility, balance and so on. Eight jin fitness function of the future research direction may be: Use measurement method, experimental method researching eight brocade fitness function, such as eight jin to college students and other young people of the research on the effects of physiological indexes such as physical form as well as to the research on the effects of the elderly mental health, eight brocade treatment efficacy study, eight brocade fitness significance to research on different professional groups, etc.

5

# Clinical Effect of Hysteroscopic Surgery in the Treatment of Endometrial Polyps

DANJIE YANG*

Department of Gynecology, Fuyang Fifth People's Hospital, Fuyang 236027, China, *E-mail: nhfyydj@163.com

Hysteroscopic electroresection of endometrial polyps is a minimally invasive operation with good curative effect and hysteroscopic electroresection of endometrial polyps can also improve menstrual disorder and reduce side effects. However, hysteroscopic electroresection of endometrial polyps alone cannot completely solve the problem of postoperative recurrence. Because vascular endothelial growth factor can promote angiogenesis, it is closely related to the formation of endometrium. In view of this, this study analyzed the clinical effect of hysteroscopic electroresection in the treatment of endometrial polyps and its effect on vascular endothelial growth factor. 28 patients with endometrial polyps were randomly divided into two groups (from September 2020 to September 2021). The patients in the control group were treated with hysteroscopic localization and simple curettage and the patients in the observation group were treated with hysteroscopic electroresection of endometrial polyps. The results showed that there was no significant

difference in serum vascular endothelial growth factor level between the two groups one month after operation (p>0.05). After 6 mo of treatment, the level of serum vascular endothelial growth factor in the observation group was significantly lower than that in the control group (p<0.05); 14 cases recurred in the control group, accounting for 25.00 % and 1 case recurred in the observation group, accounting for 3.57 %, which was significantly lower than that in the control group (p<0.05). This shows that hysteroscopic electroresection can effectively treat endometrial polyps, which is worthy of clinical application.

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6

# Clinical Effect of Combined Traditional Chinese and Western Medicine on Patients with Advanced Gastric Cancer

SUJUN LV, YANJING ZHANG*, PEIPEI WANG[1], L. DU[2], QIANLAN YANG[3], ZIXUAN WANG[3] AND LU WANG[4]

Department of Oncology, Hebei Hospital of Traditional Chinese Medicine, Shijiazhuang 050200, [1]Medical College, Hebei University of Engineering, Handan 056002, [2]Department of Nephrology, Shijiazhuang Hospital of Traditional Chinese Medicine, Shijiazhuang 050000, [3]Graduate School, North China University of Science and Technology, Tangshan 063210, [4]College of Traditional Chinese Medicine, Hebei North University, Zhangjiakou 075000, China, *E-mail: yanjing198107@163.com

Gastric cancer is a malignant tumor originated from gastric mucosal epithelium, accounting for 1/3rd of malignant tumors. The incidence rate of gastric cancer ranks first in the country, and about 170 thousand people die from gastric cancer every year. Gastric cancer can occur at all ages, especially 30 y to 60 y old. For gastric cancer, our principle is early detection, early diagnosis and early treatment. The main purpose of this study is to explore the clinical efficacy of integrated traditional Chinese and Western medicine in the treatment of advanced gastric cancer. At the level of research objects and methods, 64 patients with advanced gastric cancer (all patients with the last operation, radiotherapy and chemotherapy) treated in our hospital from June 2020 to June 2021 were randomly divided into two groups according to the number of admission. There were 32 cases in the observation group and 32 cases in the control group. The control group was treated with Western medicine and the observation group was treated with Sophora flavescens injection and Zhenqi Fuzheng capsule on the basis of Western medicine in the control group. The results showed that the total effective rate of the observation group was 62.5 % and that of the control group was 53.1 %. The total effective rate of the observation group was significantly higher than that of the control group and there was significant difference between the treatment groups (p<0.05). This showed that the treatment of advanced gastric cancer with integrated traditional Chinese and Western medicine was more effective than that with Western medicine alone. In short, in the clinical treatment of patients with advanced gastric cancer, the effect of integrated traditional Chinese and Western medicine is more obvious than that of conventional Western medicine, which is worthy of popularization and application.

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# The Mechanism of Prevention and Treatment of Aortic Dissection Based on Canine Urinary Ammonia Metabolic Pathway

XIEHUI CHEN*, Y. DU[1], LIMIN ZHAO, R. CHANG[2], X. KONG[2] AND WENPING HE[2]

Department of Geriatrics, [1]Department of Critical Medicine, [2]Department of Internal Medicine, Shenzhen Longhua District Central Hospital, Shenzhen 518110, China, *E-mail: xhchen66@126.com

Acute aortic dissection is a high-risk cardiovascular disease that suffers from strong blood impact due to

local destruction of intima, which leads to gradual detachment and expansion of intima and finally forms true and false two chambers in the patient's artery. The mortality of aortic dissection is high. At present, prevention and rescue are the main methods. Therefore, this study explored the mechanism of canine urinary ammonia metabolic pathway in the prevention and treatment of aortic dissection. 60 patients with aortic dissection hospitalized in our hospital from March 2020 to January 2021 were selected as the research objects, including 36 males and 24 females, aged 42 y to 74 y, with an average age of (58.7±2.8) y. The patients were randomly divided into study group and control group with 30 people in each group. The control group was treated with routine Western medicine; on the basis of the control group, the study group was treated with canine urinary ammonia metabolic pathway. The results showed that the incidence of vasospasm in the study group was significantly lower than that in the control group (p<0.05); after 7 d of treatment, the decrease of arterial blood flow velocity in the study group was significantly higher than that in the control group (p<0.05). The above results show that the canine urea based pathway has a significant effect in the prevention and treatment of aortic dissection, which can reduce the incidence rate of adverse events and reduce the arterial blood flow velocity and reduce the incidence of aortic dissection.

## Acknowledgements:

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# Application of Micro Implant Anchorage in Orthodontic Treatment

LEI ZHOU AND C. WANG[1*]

Department of Stomatology, [1]Administration Department, Xiangyang Central Hospital, Affiliated Hospital of Hubei University of Arts and Science, Xiangyang, Hubei Province 441021, China, *E-mail: wcj1334@126.com

With the progress of science and technology, medical technology is also developing and medical services have been greatly improved. The renewal of medical materials has also improved the treatment level of doctors. In recent years, people pay more and more attention to oral and dental health and the number of patients receiving orthodontic treatment is also increasing year by year. Orthodontic treatment is a common way of oral treatment. It mainly corrects patients' deformed teeth in the mouth, improves the beauty of teeth, further improves tooth function and protects oral health. Micro implant anchorage has the characteristics of easy operation, small volume and convenient implantation. In recent years, it has been gradually applied in orthodontic treatment. Therefore, the application effect of micro implant anchorage in orthodontic treatment was studied. 60 patients who received orthodontic treatment in the department of stomatology of our hospital from July 2020 to April 2021 were selected as the research objects, including 32 males and 28 females, aged from 16 to 35 y, with an average age of (25.6±4.5) y. The patients were randomly divided into study group and control group by computer grouping method, with 30 people in each group. Micro implant treatment was used in the study group; the control group was treated with routine orthodontic treatment. The experimental results showed that the improvement of convex distance difference of upper central incisor, angle of upper central incisor and molar displacement in the study group were significantly better than those in the control group (p<0.05). The incidence of complications in the study group was significantly lower than that in the control group (p<0.05). The above results show that micro implant anchorage has a good application effect in orthodontic treatment, which can effectively reduce the incidence of complications and improve the comfort of patients in the treatment process.

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# Effect of Vitamin D Combined with Meloxicam on Rheumatoid Arthritis

QIAN LYU, LINXIAO MA*, HUIJIE LIU AND JIHONG WANG

Department of Rheumatology, The First Affiliated Hospital of Kangda College of Nanjing Medical University (The First People's Hospital of Lianyungang), Lianyungang, Jiangsu 222000, China, *E-mail: Huama009@163.com

**Rheumatoid arthritis is an autoimmune disease. In recent years, the disability rate of rheumatoid arthritis has been increasing, resulting in the serious reduction of patients' quality of life and the gradual loss of labor force. To explore the clinical effect of vitamin D combined with meloxicam in the treatment of rheumatoid arthritis and analyze the effect of vitamin D combined with meloxicam on patients' inflammation. 100 cases of rheumatoid arthritis treated in our hospital from March 2021 to December 2021 were randomly divided into observation group and control group. The control group was treated with meloxicam combined with basic drugs and the observation group was treated with vitamin D combined with meloxicam. The joint recovery, total clinical effective rate and adverse drug reactions of the two groups were compared and the indexes of serum inflammatory related factors of the two groups were detected and compared to explore the therapeutic effects of different drug treatments on rheumatoid arthritis. The results showed that the total clinical effective rate of the observation group was 90.00 %. The joint tenderness index, the number of swollen joints and the time of morning stiffness in the observation group were better than those in the control group (p<0.05). The indexes of serum inflammatory related factors in the observation group were better than those in the control group (p<0.05). There was no significant difference in the rate of adverse drug reactions between the two groups (p>0.05). Vitamin D combined with meloxicam has a good therapeutic effect on rheumatoid arthritis. It can effectively improve the level of inflammatory indicators, inhibit the inflammatory response and promote the recovery of joint function.**

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# Expression of Polysialic Acid in Postoperative Laryngeal Carcinoma and its Relationship with Prognosis

Y. ZHENG*

Department of Obstetrics, Fuzhou Second Hospital, Fuzhou 350001, China, *E-mail: zy18850449294@163.com

**Laryngeal carcinoma is a malignant tumor originated from laryngeal mucosal epithelium. The incidence rate of laryngeal cancer has been increasing in recent years. To study the pathogenesis of laryngeal cancer and clarify the markers of laryngeal cancer metastasis and prognosis has always been a hot spot in the field of laryngeal cancer research. Polysialic acid is alpha-2,8-glycosidically linked sialic acid. The linear homogeneous polysaccharide formed by 2,8-linked sialic acid residues is mainly attached to nerve cell adhesion molecule, which plays a key role in regulating intercellular adhesion, cell migration, nerve development and remodeling. This paper studied the expression of polysialic acid after laryngeal cancer surgery and its relationship with prognosis. At the specific level, the expression characteristics and differences of polysialic acid in cancer tissues, adjacent tissues, lymph node tissues and normal tissues of 62 patients with laryngeal cancer were detected by Western blot. The results showed that polysialic acid in laryngeal cancer adhered to nerve cell adhesion molecule subunits with molecular weights of 140 kDa and 120 kDa and mainly adhered to nerve cell adhesion molecule with molecular weights of 140 kDa; in laryngeal carcinoma, polysialic acid expression was positive in all lymph nodes (100 %); at the same time,**

the positive expression of polysialic acid was positively correlated with the degree of tumor differentiation, tumor location, tumor size, primary tumor infiltration range and treatment prognosis. Therefore, polysialic acid has prognostic value in the postoperative treatment of laryngeal cancer. Taking polysialic acid as a drug for the treatment of laryngeal cancer may become a new way to prevent tumor metastasis.

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# Effect of Atorvastatin Combined with Trimetazidine on Coronary Heart Disease

XIEHUI CHEN*

Department of Geriatrics, Shenzhen Longhua District Central Hospital, Shenzhen 518110, China, *E-mail: xhchen66@126.com

In recent years, with the continuous development of interventional therapy technology, percutaneous coronary intervention is a common treatment for acute coronary syndrome, but it is still inevitable to have the problem of minor myocardial injury. Therefore, the protective and therapeutic effects of preoperative loading doses of atorvastatin and trimetazidine on myocardial injury in patients with non ST segment elevation acute coronary syndrome were analyzed. 60 patients with non ST segment elevation acute coronary syndrome hospitalized in the department of cardiology of our hospital from March 2021 to December 2021 were randomly divided into load atorvastatin group, load trimetazidine group, load atorvastatin combined with trimetazidine group and routine dose atorvastatin combined with trimetazidine group. The indexes of serum malondialdehyde, troponin I, high-sensitivity C-reactive protein and cardiovascular adverse events before and after percutaneous coronary intervention were compared and the effects of different drugs on myocardial injury were analyzed. The results showed that the indexes of serum malondialdehyde, troponin I and high-sensitivity C-reactive protein in the load atorvastatin combined with trimetazidine group increased significantly before and after operation (p<0.05) and the inflammatory reaction, myocardial injury and endothelial cell injury were alleviated. The patient took 80 mg atorvastatin and 60 mg trimetazidine orally without adverse drug reactions. Preoperative oral loading of atorvastatin and trimetazidine has a protective effect on myocardial injury in patients with non ST segment elevation acute coronary syndrome and the protective effect is better than that in patients without loading and patients with single drug.

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12

# Potential Influencing Factors and Intervention Plan of Bone Mineral Density in Patients with Gestational Diabetes Mellitus

Y. ZHENG*

Department of Obstetrics, Fuzhou Second Hospital, Fuzhou, 350001, Fujian, China, *E-mail: zy18850449294@163.com

Bone mineral density is a reflection index of human bone sparsity. Gestational diabetes mellitus patients suffer from bone loss in various degrees during pregnancy. Therefore, the potential factors of bone mineral density in gestational diabetes mellitus patients are studied and analyzed in order to propose a bone mineral density intervention treatment plan for them. 180 pregnant gestational diabetes mellitus patients were selected as the research object and they were randomly divided into experimental group and control group according to whether they had osteoporosis. The experimental group was gestational diabetes mellitus patients with osteoporosis and the control group was gestational diabetes mellitus patients. Before the experiment, the bone mineral density of the two groups and the routine indexes under fasting were counted. Then, the changes of diet, living habits and physical function during pregnancy were followed up. The results showed that there was no significant difference in the disease history, age and other indicators between the two groups before the experiment, but there was significant difference in clinical intervention. In the dietary structure, the intake of dark vegetables in the experimental group was significantly higher than that in the control group and its supplementation of dairy bean products and compound nutritional supplements was significantly lower than that in the control group. There was significant statistical difference in the content of blood protein between the two groups (p<0.05). Genetic factors, dietary structure, living habits and exercise patterns will affect the changes of bone mineral density in patients with gestational diabetes mellitus. Exploring the potential influencing factors and intervention methods of bone mineral density will help to provide guidance and improvement plans for their nursing intervention.

## Acknowledgement:

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# Nursing Study on Patients with Systemic Lupus Erythematosus Complicated with Pulmonary Hypertension and Severe Right Heart Failure

QIN ZHANG* AND ZHAOMENG GAO[1]

School of Nursing, Shandong Institute of Petroleum and Chemical Technology, Dongying, Shandong 257061, [1]Department of Rheumatology and Immunology, Shengli Oilfield Central Hospital, Dongying, Shandong 257034, China, *E-mail: zhangqin.321@163.com

Systemic lupus erythematosus as an immune disease, the deposition of its immune complex will cause damage to the body's functional organs or system. The etiology of pulmonary hypertension is more diverse. The disease characterized by the increase of pulmonary artery pressure and resistance has a high disability rate and mortality rate. It is one of the major diseases with high risk. The mortality rate of systemic lupus erythematosus combined with pulmonary hypertension after 2 y is >20 % and it is very easy to cause heart failure and physical function damage. In order to explore the nursing methods of patients with systemic lupus erythematosus complicated with pulmonary hypertension and severe right heart failure, 72 patients with severe right heart failure who met the admission disease criteria were studied. The average age of the patients was (46.23±18.47) y old and the course of disease was >2 y. Then, according to the classification standard of pulmonary hypertension function, the subjects were randomly divided into experimental group (grade III) and control group (grade IV). The patients in the two groups were treated with pulse therapy, hormone therapy and anti immunotherapy respectively. Pulse therapy is a combination of normal saline and methylprednisolone sodium succinate intravenous drip, hormone therapy is oral prednisone acetate tablets and anti-immunotherapy is a combination of normal saline and cyclophosphamide intravenous

drip once a month. The results showed that the symptoms of the patients were relieved after treatment and the disease degree of the research subjects was significantly improved before and after the experiment. The experimental data had significant statistical differences. Strengthening the nursing of patients with systemic lupus erythematosus complicated with pulmonary hypertension and severe right heart failure can effectively reduce their disease complications and improve their quality of life.

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# Correlation between Gene Expression Level Induced by Mineral Dust and Drug Resistance of Lung Cancer Cells

XIAOBO LI[1,2]*, HAO WU[1,2], D. WEN[1,2] AND S. HE[1,2]

School of Resources and Environmental Engineering, 1Key Laboratory of Exploitation and Application of Ionic Rare Earth Resources, Ministry of Education, 2Key Laboratory of Mining Engineering, Jiangxi University of Science and Technology, Ganzhou, Jiangxi 341000, China, *E-mail: zhxylxb@163.com

Mineral dust inducible gene is found in miners' alveolar cells exposed to mineral dust for a long time and its expression level plays an important role in the formation of cancer. Cisplatin is one of the most common chemotherapeutic drugs for the treatment of cell lung cancer, but the drug resistance mechanism in lung cancer cells will affect the treatment process and curative effect. The research thought that mineral dust induced gene silencing and overexpression virus vector constructed drug-resistant cells and analyzed the correlation between the expression level of induced gene and drug resistance of lung cancer cells with the help of real-time fluorescence quantitative experiment and Western blot experiment and then detected the toxic effect of cisplatin on cells and the changes of drug sensitivity with the help of cytotoxicity experiment. The results showed that the protein expression level of the constructed drug-resistant cells was significantly higher than that of the non-drug resistant cells (p<0.01). The half-maximal inhibitory concentration value of the overexpressed mineral dust induced gene cells and drug-resistant cells increased significantly and the expression of efflux pump transporter and induced gene protein of the overexpressed cells were significantly up-regulated. Mineral dust induced gene can reduce the sensitivity of lung cancer cells to chemotherapeutic drugs and its gene expression level is positively correlated with the degree of cisplatin resistance, which leads to cisplatin resistance of lung cancer, which can effectively improve the treatment effect of lung cancer patients.

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# Gastrointestinal Tumor Segmentation Method Based on Deep Learning and Multimodal Magnetic Resonance Imaging

ZHENG CHU AND Z. ZHANG[1]*

Department of Neurosurgery, 1Department of General Surgery, Pangang Group General Hospital, Panzhihua, Sihcuan 617000, China, * E-mail: 1095187247@qq.com

With the continuous maturity of magnetic resonance imaging technology, the gradual popularization of multimodal magnetic resonance imaging and the rapid development of deep learning technology, the problem of gastrointestinal tumor segmentation has begun to glow with new vitality. By segmenting the tumor in the magnetic resonance image, the doctor can locate the position of the tumor and obtain the size of the tumor, which helps to achieve personalized treatment for the patient. Research on the automatic segmentation method of gastrointestinal tumor images can provide help for the analysis of gastrointestinal tumors and is an important prerequisite for the classification and analysis of gastrointestinal tumor images in the later stage. It also provides a possible reference for making full use of multimodal magnetic resonance imaging data. In this paper, aiming at the problem of uneven gray level of magnetic resonance image itself, using the development specificity of multimodal magnetic resonance image data itself, this paper proposes a differential operation for multimodal gastrointestinal tumor segmentation. At the same time,with the assistance of multimodal image difference information, this paper realizes the method of using multimodal information to locate the tumor area, which provides a certain guarantee for obtaining the accurate segmentation of gastrointestinal tumors. This article combines the convolutional neural network technology in deep learning, which is different from the previous image block training method used by convolutional neural network in gastrointestinal tumor segmentation. Here we directly use slices to train and finally predict the category of each pixel through softmax to get pixel-wise the segmentation result. The experimental results in this paper show that the initial processing of multimodal magnetic resonance image data and label reconstruction and sorting is also very time-consuming. This article can be efficiently completed by writing MATLAB scripts. List the segmentation prediction accuracy of the last 12 000 iterations in the training process of 40 000 iterations. It can be seen that the accuracy of training using the method of VGG and Deconvnet pre-training model is higher than the result of direct training. Moreover, the segmentation accuracy of different types of training and prediction is also quite different. This article proposes a deep deconvolutional neural network model to solve the problem of gastrointestinal tumor segmentation. Using slice data of three dimensional magnetic resonance imaging, a multi-channel deep deconvolution network model is constructed. Different from the previous method of gastrointestinal tumor segmentation, which uses image block training, slices are directly used for training and the category of each pixel is predicted by softmax to obtain the pixel-wise segmentation result.

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# Fast Automatic Image Detection Method of Liquid Medicine Bottle Mouth Defects

LEPENG SONG*, J. HUANG, XIANWEN LIANG, KUN WANG, XIN LI, QIN LIANG, HUI CHEN, Z. LI AND MINSHA CHEN

Chongqing University of Science and Technology, School of Electrical Engineering, Chongqing 401331, China, * E-mail: slphq@163.com

Aiming at the problem of defect detection of liquid medicine bottle mouth image, this paper proposes a four-point random positioning method to locate the detection area of bottle mouth image, which has high positioning accuracy and realizes the accurate positioning of bottle mouth detection area. The coordinates of the bottle mouth detection area are transformed into a rectangular image which is easy to process. The hysteresis threshold of segmentation is determined according to the vertical projection characteristics of the transformed image and then the hysteresis threshold is used for image segmentation, which can effectively eliminate the influence of noise on image segmentation. The segmentation effect is good and can effectively improve the accuracy of defect detection. The experimental results show that the algorithm has the advantages of fast detection speed and high accuracy, which can meet the requirements of 72 000 bottles/h high-speed production line and can be widely used in the industrial production of liquid medicine bottle mouth defect detection. The rapid automatic image detection system of liquid medicine bottle mouth defects is divided into four parts: The first part is the structure design of liquid medicine bottle

mouth detection system, which includes: industrial camera, Light Emitting Diode ring lighting source, photoelectric sensor, programmable logic controller and industrial control computer; the second part is the classification of liquid medicine bottle mouth image defects, mainly including bottle mouth ring area defects, bottle mouth sealing surface defects and ring shape defects. The third part is the positioning of the edge of the bright ring inside and outside the bottle mouth and the positioning of the detection area around the bottle mouth; the fourth part is the coordinate transformation of the monitoring area. Through the coordinate transformation of the detection area of the bottle mouth, the original ring area is transformed into a rectangular image, which brings great convenience to the defect detection and processing. The experimental results show that the algorithm can detect the defects of the bottle mouth very well. Due to the imperfection of the bottle mouth acquisition system and the mechanical jitter of the chain, there are some missing and false detection in the algorithm. Although in the actual investigation of the liquid medicine bottler factory, it is found that the outer ring of the bottle mouth is rarely worn. The detection accuracy was 99.3 %, the detection missed rate was 0.7 % and the average detection time was 38 Ms. It can meet the requirement of 72 000 bottles production line. The four point positioning method solves the problem of low speed automatic image detection of liquid medicine bottle mouth defects and provides effective theoretical support for liquid medicine bottle production.

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# Medical Image Segmentation Using the Hybrid Bacterial Foraging Algorithm

YANG LIU AND L. W. TIAN*

School of Information Engineering, Shenyang University, Shenyang 110044, China, *E-mail: tlw@syu.edu.cn

Image segmentation is one of the focus and difficulty of medical image processing research and it has always been a hot research topic. Image segmentation is the basis of higher-level image processing such as image analysis and image recognition. The results of segmentation directly affect the correctness of higher-level analysis and understanding. Technology based on image processing has a wide range of applications. Whether in terms of image scenes or imaging principles, there are problems such as diverse and complex image sources and vastly different image attributes. For medical image data, we must first clarify the purpose of segmentation, whether it is the extraction of lesions, the extraction or segmentation of organs. The segmentation of different organs also has different specific goals, such as brain tissue segmentation, brain tumor segmentation and lung nodules' section division and so on. Different tasks cannot be completed with a unified model at present, but fusion restricts the use of prior knowledge and loses segmentation accuracy. In the image processing problems facing the industrial field and medical image processing field, threshold segmentation is the most important segmentation method. A new multi-objective optimized bacterial foraging algorithm was introduced in this work, which called Hybrid Multi-Objective Optimized Bacterial Foraging Algorithm, which combines the crossover-archives strategy and the life-cycle optimization strategy. At first, the format and characteristics of medical images were understood in depth and then appropriate image preprocessing operations were designed to enhance the target features, finally the data in the original format was processed into a format suitable for input based on the mixed bacterial foraging algorithm model. Effective integration of life cycle mechanisms and cross-archiving strategies can achieve better diversity and faster convergence. In order to find the best method through the research field, we improved the traditional bacterial foraging algorithm to effectively deal with multi-objective problems. The experiments of segmentation on a set of gray-scale medical images are performed, experimental results show that the algorithm proposed in this paper has good clinical value for medical image analysis.

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# Computed Tomography Image Research and Clinical Application of Knee Ligament Tear Injury in Table Tennis Sports Based on Adaptive Enhancement Algorithm

XIN LIU*

Department of Military and Physical Education, Changchun University of Finance and Economics, Changchun 130122, China, *E-mail: liuxin20131111@163.com

In table tennis, due to the large amount of exercise and high intensity of exercise load, athletes often have knee ligament tear injury, which not only causes pain to athletes, but also affects the training progress of athletes. Therefore, computed tomography images based on adaptive enhancement algorithm are used to examine the tear injury of knee ligament, so as to provide basis for subsequent diagnosis and treatment. 80 patients with sports knee ligament tear injury were selected from the Sports Medicine Department of our hospital, including 62 males and 18 females, aged from 16 y to 29 y, with an average age of (21.7±4.2) y. Using random number table method, 80 patients were randomly divided into study group and control group, with 40 people in each group. In the study group, computed tomography images based on adaptive enhancement algorithm were used to examine the tear injury of knee ligament; the control group used general computed tomography images to examine the tear injury of knee ligament. The experimental results showed that the length and included angle of the anterior inner edge and posterior outer edge of anterior cruciate ligament and posterior cruciate ligament in the study group were significantly better than those in the control group (p<0.05); the thickness and width of anterior cruciate ligament and posterior cruciate ligament in the study group were significantly better than those in the control group (p<0.05). The above results show that the computed tomography image based on adaptive enhancement algorithm can reconstruct the image more clearly, which provides a new path for the reconstruction of knee ligament tear injury.

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# Feasibility and Clinical Effect of Computed Tomography Three-Dimensional Reconstruction in the Diagnosis and Treatment of Complex Finger Deformity in Children

ZHUO SHI[1], T. CHENG[1] AND K. YU[2]*

Guangxi Key Laboratory of Image and Graphic Intelligent Processing, [1]Dean's Office, [2]School of Art and Design, Guilin University of Electronic Technology, Guilin 541004, China, *E-mail: shzh_cn@163.com

Complex finger malformation is one of the most common congenital malformations in children, which seriously affects the appearance and life of children. At present, surgical repair is the only way to treat complex finger deformities. It is important to obtain the accurate anatomical structure before and after operation. The feasibility and clinical effect of computed tomography three-dimensional reconstruction

in the diagnosis and treatment of complex finger deformity in children were studied. 30 children with complex finger deformities hospitalized in our hospital from November 2020 to March 2021 were selected as the research objects. 30 children with complex finger deformity were examined by hand computed tomography and three-dimensional image reconstruction. At the same time, hand digital X-ray examination was performed. The length, lateral bending angle and Wassel classification of the affected finger were measured. The experimental results show that there is a significant difference between the data measured by computed tomography and the results measured by X-ray. According to the three-dimensional data of computed tomography, the physical model reflecting the real anatomical structure can be established. The above results can show that computed tomography three-dimensional reconstruction has an excellent effect in the clinical diagnosis and treatment of children's complex finger malformations, can more clearly reflect the real bone structure of children's hands and increase the success rate of surgery.

**Acknowledgements:**

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# Clinical Effect of Computed Tomography Scanning Technology in the Diagnosis of Various Types of Pulmonary Tuberculosis

LIJUAN DU AND HEPING DONG[1]*

Department of Radiology, [1]Director of Outpatient Center, Punan Hospital, Pudong New Area, Shanghai 200125, China, *E-mail: dong-he_ping@126.com

Pulmonary tuberculosis is a common clinical infectious respiratory disease. The main pathogenesis is combined with Mycobacterium infection. In recent years, computed tomography has gradually become a common diagnostic method for the diagnosis of pulmonary tuberculosis. The study analyzed the clinical application effect of spiral computed tomography in the typing diagnosis of various types of pulmonary tuberculosis. 1250 cases of pulmonary tuberculosis clinically diagnosed from January 2017 to December 2021 were selected for retrospective analysis. The X-ray, computed tomography and clinical data of all cases were complete and the computed tomography examination equipment was the 64 row spiral computed tomography machine of German Siemens. The results of X-ray diagnosis and spiral computed tomography examination of cases were sorted out and the case classification and spiral computed tomography manifestations of various types of pulmonary tuberculosis were discussed. Objective to study the detection rate of X-ray and spiral computed tomography in pulmonary tuberculosis and concomitant diseases and to evaluate the application of spiral computed tomography scanning in diagnosis and classification of pulmonary tuberculosis. The results showed that the clinical detection rates of spiral computed tomography and X-ray were 97.5 % and 76.5 % respectively. The detection rates of calcification and pleural effusion by spiral computed tomography were higher than that by X-ray (p<0.05). Spiral computed tomography has an ideal effect on the diagnosis and classification of various types of pulmonary tuberculosis, which is better than X-ray diagnosis. It can accurately diagnose and classify various types of pulmonary tuberculosis.

**Acknowledgement:**

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# Application of the Third Generation Dual Source Computed Tomography in the Diagnosis and Treatment of Chronic Cerebral Ischemia and its Economic Benefit Evaluation

H. YAN*

International Business School, Shaanxi Normal University, Xi'an 710119, China, *E-mail: hansdjn@163.com

The third generation dual source computed tomography brain perfusion technology has a wide scanning range. It can obtain two kinds of image information after one scanning process, that is, whole brain perfusion information and cerebrovascular information. It has high feasibility and effectiveness in practical application. In order to explore the clinical application effect and economic benefit evaluation results of the third generation dual source computed tomography cerebral perfusion technology in the diagnosis and treatment of chronic cerebral ischemia, 128 patients with arterial stenosis or occlusion were divided into groups and 64 patients in each group were obtained. Through the whole brain computed tomography perfusion imaging, the emptying time, average transit time, cerebral blood volume, cerebral blood flow and other related indexes were compared and analyzed. The results showed that compared with the healthy side, the emptying time and mean transit time of the affected side were prolonged, and the cerebral blood volume and cerebral blood flow showed an increasing and decreasing trend respectively. Among them, only the comparative difference of emptying time was statistically significant ($p<0.05$). For the patients with reduced collateral arteries, the emptying time and average transit time of the affected side were prolonged, the cerebral blood volume increased and the cerebral blood flow decreased. The difference between the affected side and the healthy side was statistically significant ($p<0.05$). This shows that the third generation dual source computed tomography can obtain the cerebral hemodynamic parameters with high research value through analysis and achieve good application effect and economic benefit evaluation results in the diagnosis and treatment of chronic cerebral ischemia.

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# Identification Method of Chinese Medicine Based on Electronic Tongue and Pattern Recognition

MINSHA CHENG, LEPENG SONG* AND YONGKANG CHEN

Chongqing University of Science and Technology, School of Electrical Engineering, Chongqing 401331, China, *E-mail: slphq@163.com

In order to realize accurate and objective identification of Chinese traditional medicines, the voltammetric electronic tongue system based on virtual instrument technology was used to detect and analyze four kinds of Chinese traditional medicines, namely Astragalus membranaceus, Codonopsis pilosula, Pericarpium Citri Reticulatae and hawthorn. In order to solve the problem of large output data and complex signal of electronic tongue, feature points extraction and discrete wavelet transform are used for signal preprocessing respectively. Based on the clustering of sample points and classification effect, a better data preprocessing method is obtained; on this basis, principal component analysis, cluster analysis and back propagation neural network were used to analyze the differences of different Chinese medicines and the feasibility of electronic tongue system to identify Chinese medicines was studied. The electronic tongue and pattern recognition Chinese medicine detection system is divided into four parts: The first part is the structure design of the electronic tongue system, which includes the corresponding signal, conditioning circuit module, data acquisition card, upper computer and excitation signal; the second part is the data preprocessing, the main

feature point extraction method, according to the working principle of large amplitude pulse voltammetry and the characteristics of response current. The peak value (charging current) and inflection point (oxidation-reduction current) of the sensor output signal which can best reflect the solution characteristics are selected as the eigenvalues to reduce the amount of data and simplify the system processing difficulty; the wavelet transform method introduces the similarity coefficient to quantitatively evaluate the wavelet transform effect and in order to eliminate the influence of the data order of magnitude and dimensional difference on the analysis results, the post-processing is optimized. The third part is the pattern recognition method. After preprocessing, principal component analysis, cluster analysis and back propagation neural network are used to analyze the feature data of electronic tongue. Experiments show that dnt-back propagation neural network has strong discrimination ability for four kinds of Chinese medicine. The prediction accuracy of training set and test set is 100 %. It shows that the nonlinear classification model is more suitable for the analysis of traditional Chinese medicine. The above results prove that the electronic tongue system is feasible for the detection and analysis of traditional Chinese medicine. The Chinese patent medicine identification system based on electronic tongue and pattern recognition greatly improves the identification quality of products and provides effective theoretical and technical support for Chinese patent medicine identification.

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# Analysis and Countermeasures of the Influence of Scientific Exercise on Human Psychological Function

G. SHAO*

Physical Education Institute, Inner Mongolia Normal University, Hohhot 010022, China, *E-mail: shaoguohua888@163.com

Health is a systematic project. Physical exercise is beneficial to health. Reasonable scientific exercise is the most effective way to improve health and physique and can prevent and cure diseases. Moderate physical exercise can enhance physical fitness, improve the body resistance to disease, enhance the body's immune function. Only when we pay attention to reasonable diet, moderate exercise, good personal lifestyle, psychological balance and other factors, and guide our behavior, can we achieve a healthy body. Literature method: A large number of electronic literatures, books, sorting and induction of sports and improve the status of psychological function and research results; questionnaire survey method: According to the research needs, set up a questionnaire around improving psychological function, analyze and guide the respondents to ensure the authenticity and scientific of data collection. Use Excel software to check and analyze the collected data. Exercise when the body can release bleeding amine, glucose, male hormones, adrenal corticosteroids adjust physiological conditions. It can also promote the release of brain morphine, which can lead to relaxation, improve self-belief, reduce anxiety, isolate stress and improve psychological function. Exercise is not only good for the body, but also for the mind. Individual bodily form, figure and the composition of the body, suffer congenitally. The influence of heredity is great, but the nurture after death, training, carving also cannot be ignored. Therefore, through sports training, planned sports and nutrition allocation to change the body composition, develop a good posture, attractive appearance, give a good impression, improve social communication, improve interpersonal relations and build self-confidence. Make people feel a kind of well-being and peace of mind. Self-belief is an overall perception of one's own worth and abilities. In daily life, due to the development of physical ability, I have more confidence in my ability and a sense of value. A well-balanced exercise can naturally relieve fatigue and relax the body and mind. Exercise can improve body perception, reduce muscle tension, quiet the sympathetic nervous system, stimulate parasympathetic nervous system, relax the body and reduce anxiety. Carry out physical training for a long time, promoted health, strong physique, each organization system of the body in the central nervous system innervation, bear outside stimulation and coordinate the ability of each organization system get enhancement, make organism get exercise consequently while, adapt ability to improve ceaselessly, the

willpower of human body increases ceaselessly. One or the great physiological load of exercise training for a long time, can cause the hypothalamus-pituitary-gonadal axis function, blood testosterone levels drop, poor performance for excitement and falls in consciousness of competition, physical recovery slow, testosterone is the main anabolic hormones in the human body, promote amino acid intake, nucleic acid and protein synthesis, promote the growth of muscles and bones, and stimulate and promote red blood cell secretion, increase muscle Kang Yuan reserves, maintain male aggression, initiative consciousness, such as the appropriate amount of exercise or sport for a short period of time does not affect the endocrine. For a long time, after the motion that carries momentum greatly, can increase the incidence rate of athletic sex anemia, this kind of anemia is to be short of iron sex anemia more, reason is unidentified, conversely, anemia can cause athletic ability to drop. Excessive exercise can cause sports hematuria proteinuria and sports asthma attacks.

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# Effect of Scientific Movement on Human Function under the Field of View of Physical Medicine Fusion

JIAMING YUE*

Beijing Sport University, Haidian, Beijing 100084, China, *E-mail: yuejiaming@qq.com

Health is an essential element of human survival and development, but all kinds of diseases have come. As the saying goes, "life is in sports", often participate in sports, not only can have a healthy body, but also can improve their own body immunity, prevention of disease and so on. Exercise plays an important role in health to pursue health. The method of literature and questionnaire is used. The use of Excel software for the collection of data for inspection and other statistical processing and analysis. Moderate-intensity physical activity can be physical and mental, the most ideal effect between 20 to 30 min per activity time, the frequency of activities is 2 to 4 times a week, the exercise method can be freely selected with their own interests, designed to steadily improve the individual's physical fitness, improve health and ultimately reduce the chance of disease. The main factors affecting health in modern society are irrational lifestyle, unreasonable diet and psychological factors. The irrationality of the lifestyle is mainly the irrationality of people's behavior, including all aspects of daily life, including lack of proper physical exercise, excessive smoking, life and work pressure, and so on. In addition, psychological factors are also one of the important problems that cause the insecurity of modern human beings, and the psychological problems of the more and more psychopaths and people suffering from depression have become a problem that cannot be ignored. The body will appear during exercise temperature regulation, neuroendocrine reactions will directly cause the immune system many parameters change, such as exercise can make neutrophils rise sharply, the cell interferon can enhance the vitality of natural killer cells, macrophages and T lymphocytes, these cells can swallow the virus, so exercise can improve the body's immunity. Exercise is positive for the rotation of the respiratory cycle, especially aerobic exercise. A well-developed fitness program enhances the efficiency of the cardiopulmonary system to provide oxygen, energy to the heart, nerves and muscles. After several months of aerobic endurance training, the rate of heart rate/min can be reduced when quiet 10 to 15 times, aerobic endurance training can increase the heart room cavity to increase blood volume, increase the heart wall muscle contraction strength, so contraction is more powerful, increased blood output per heart contraction. Cardiopulmonary endurance is the body's use of respiratory organs to carry air from the outside of the body inhalation, through the nasal cavity, throat, trachea, bronchial, lung, alveoli for gas exchange and then by the pulmonary veins, left atrium, left ventricle, upper and lower aorta, aorta, small arteries, microvascular and tissue gas exchange, supply the body's main organ oxygen, to maintain the body's continuous, periodic movement of oxygen, supply good or not determined in the heart and the respiratory system.

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# The Effectiveness of Physical Exercise for People with Sub-health Status

Y. SHI*

Institute of Physical Education, Huanggang Normal University, Huanggang, Hubei 438000, China, *E-mail: 838496883@qq.com

**With the popularization and application of various tools, people are liberated from heavy manual labor, which is the progress of the society. However, the human body is in decline, with a variety of diseases of life is becoming more and more normal. In order to maintain a healthy body and a happy life, sports have become a new leisure way for people and become more and more mainstream of the society. Different exercise groups need different nutritional needs and different programs need different nutritional supplements, which is a direction of sports nutrition. Exercise and nutrients are indispensable factors to maintain and promote human health and they complement each other. Literature research: Through the network search, China National Knowledge Infrastructure database, books and periodicals and other ways to consult and related literature, understand the concept of health analysis. Inductive summary method: Through the sub-health problems and health awareness of the cultivation of the relevant discussion on the inductive analysis of the sub-health status of people with physical exercise effect. Exercise can enhance the metabolic function of the body, promote blood circulation, so that nutrients are more quickly transported to the body's various tissues; good sports ability is inseparable from the reasonable supply of nutrition. If we only pay attention to sports and do not supplement reasonable nutrition, it will affect the recovery and growth of the body and harm health. If only heavy nutrition without physical exercise, intake of nutrients cannot be good metabolism, transformation will lead to a variety of excessive disease or obesity; comprehensive balanced amount of nutrition. The human body has a certain demand for all kinds of substances, excessive intake will backfire, high sugar, high salt, high fat food long-term excessive consumption, especially excessive saturated fatty acids will lead to sub-health. Therefore, a balanced amount of nutrition is one of the basic means to maintain health. When reducing weight fat person passes certain have oxygen sports, make its use up body redundant and adipose, stimulative metabolism, achieve the goal that motion reduces weight. Normally carry out exercise is bigger, athletic time is longer, the candy that USES up and adipose more, the motion reducing weight method with the commonest motion has canter, sett-up exercise, fast walk, race to walk, skate, long distance swims, ride bicycle, play taijiquan, jump rope exercise of fitness, jump/ do rhythmic exercise, ball kind motion is like basketball, football to wait for long movement. According to the research of American sports medicine, before oxygen motion 15 min, serve as main energy supply by yuan of liver candy, adipose supply can just begin to start after motion 15-20 min, ask commonly so oxygen motion lasts 30 min above. Sub-health refers to the state of non-disease and non-health, which is a kind of sub-health state and is between health and disease. Therefore, it has the appellation of "sub-health", "third state", "intermediate state", "wandering state", "gray state", etc., which is generally called "sub-health state" in China. People can recover their health through proper exercise, such as aerobic exercise. Aerobic exercise is a kind of endurance exercise. During the whole exercise process, the amount of oxygen inhaled by the body is roughly equal to the amount needed. Low-intensity, rhythmic, long-duration exercise is basically aerobic exercise, such as walking, jogging, long-distance slow swimming, cycling, dancing and so on. Aerobic exercise is the most effective and scientific way to maintain physical and mental health.**

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# Psychological Problems and Countermeasures of Students from Local Colleges in China under the Post-epidemic Situation of COVID-19

SHASHA WANG*

School of Foreign Studies, Huanggang Normal University, Huanggang, Hubei 438000, China, *E-mail: wssabc112233@163.com

The so-called post-epidemic situation of coronavirus disease means that the epidemic will come and go, with small outbreaks, backflows from foreign countries and seasonal outbreaks occurring at any time. Investigating the psychological status of Chinese college students in the post-epidemic situation of coronavirus disease, this paper analyzes the problems and puts forward effective strategies, so as to improve the college students' psychological protection ability, helping them establish a positive attitude and get through the serious epidemic situation completely and successfully. Taking the six local colleges in Hubei Province as an example, the author has randomly selected 1200 students from different majors and grades as the online investigation objects, while 80 students were chosen to be interviewed offline. Based on the self-designed general individual questionnaire, the self-rating depression scale and self-rating anxiety scale, the statistical analyses are finished with the help of statistical package for the social sciences 23.0 software. It is found that Chinese college students still have psychological problems like fear, panic, worry, doubt, depression, anxiety and irritability, which have certain impacts on them. In view of these problems, the author has proposed coping strategies from the four levels of society, school, college and individual, such as: Releasing the education department's authoritative information timely, avoiding students' doubts caused by the uncertainties; guiding students to pay attention to the authoritative media and platforms, improving their ability to distinguish information; strengthening their psychological knowledge education, constructing their mutual psychological support among the peers; enhancing the home-school cooperation, adjusting students' negative emotions timely; developing the college counselors' professional ability, ensuring students' physical and mental health. Through 3 mo of unremitting efforts, the students' depression, anxiety and other psychological items have been effectively relieved. When formulating the coping strategies, students' genders, majors, personality differences and other related factors should be taken into consideration. Only if we apply psychological knowledge into analyzing the situations and solving the problems, could the students' depression, anxiety and other psychological items be alleviated.

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# Investigation and Analysis on Rehabilitation of Elderly in Urban and Rural Communities and Discussion on Self-Health

SIQING LIU, LONGJIANG YANG* AND P. WANG[1]

Outpatient Department, Qingdao Special Service Sanat People's Liberation Army Navy, Qingdao 266071, [1]Kangyangyuan, Weihai Central Hospital, Weihai 264400, China, *E-mail: yljhuhu@163.com

In the face of the increasing number of elderly people, China's medical care, pension, nursing, social security and other fields have been greatly impacted, how to use the limited health resources to provide the elderly population needed, the most urgent health services, is one of the key tasks to be solved in China. This article mainly has carried on the urban and rural community elderly rehabilitation research analysis and self-care, health care demand in China is based on the status quo, analysis of the elderly health care to meet demand, pension service demand satisfied degree influence elderly health related factors, put forward corresponding countermeasures to promote the development of elderly health care, in order to provide reference for relevant departments to formulate corresponding policies and measures. In this paper, through literature search and expert interview, a questionnaire on the rehabilitation needs of the elderly was formed. Two pension institutions in the city were selected as the objects of the survey by the method of convenience sampling, the test draft of the questionnaire was tested and IBM Statistical Package for the Social Sciences 24.0 software was used for data analysis. Questionnaire survey results show that in terms of meeting the current demand of health care services for the elderly, social support accounts for a relatively low level and the level of economic support obtained is mostly maintained at a low level (0~5000 yuan). In terms of medical care demand, less than half of the elderly are willing to choose daily check-up and health care. In terms of life care needs, children and spouse are the main providers of daily life care for the elderly and community support provides less care. In terms of spiritual comfort, 45 % of the elderly meet with their children for more than a month. With the deepening of the aging process of population, the aging problem of population also shows different characteristics, mainly in the following aspects: The size of the elderly population base is large, the rapid growth; the proportion of the elderly increased; the development of urban and rural areas is not coordinated, the elderly population social stratification is obvious; the economic development is obviously slower than the aging rate; the elderly family empty-nesting is obvious, the average life span of the elderly is extended, the quality of life and health is decreased, the elderly mental health is poor, the ability of disease risk tolerance is poor, the healthy aging has not reached a consensus and the lack of professional health technicians for the elderly.

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# Effect of Comprehensive Nursing on Successful Breastfeeding of Pregnant Women

RONGQIN LYU, CHUNHONG XIE* AND NINGNING ZHANG

Department of Obstetrics, Shijiazhuang People's Hospital, Shijiazhuang, Hebei Province 050000, China, *E-mail: lmyx9619@163.com

Breastfeeding refers to the way in which babies are fed with their mother's milk. Previous studies have shown that breastfed infants develop better. Breastfeeding can help to enhance the immunity of infants, promote the intellectual development of infants, reduce the incidence of sudden infant death and reduce the probability of obesity and allergic diseases in children. Therefore, the success rate of breastfeeding is related to the development of infants and postpartum care for pregnant women is also very important. The study explored the application effect of comprehensive nursing on the success of maternal breastfeeding. 120 pregnant women who were hospitalized and delivered in our hospital from July 2020 to may 2021 were selected as the research objects, aged 22-31 y, with an average age of (25.3±2.7) y. The subjects were randomly divided into study group and control group with 60 people in each group. The study group adopted comprehensive nursing intervention in postpartum; the control group was intervened by routine nursing. The results showed that from the 2nd d of intervention, the amount of lactation in the study group was significantly higher than that in the control group (p<0.05); the exclusive breastfeeding of pregnant women in the study group was significantly higher than that in the control group (p<0.05). The above results show that the implementation of postpartum comprehensive nursing intervention can significantly improve the success rate of breastfeeding and then contribute to the healthy development and development of infants.

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# Clinical Efficacy of Low Carbohydrate Diet in Health Management of Overweight or Obese Type 2 Diabetes Mellitus

YANFEI HU[1,2], GUIFEN HU[3], NA ZHU[1], ZIXIN HAN AND SHUANGXI L[1]*

Department of Food Quality and Safety, Xingzhi College Zhejiang Normal University, Jinhua 321004, [1]Lanxi Baicheng Hospital, Lanxi 321100, [2]Zhejiang Hejiansheng Nutrition Technology Co., Ltd, Hangzhou 310000, [3]Jinhua Affiliated Hospital, Zhejiang University School of Medicine, Jinhua 321000, China, *E-mail: lishuangxi1986@163.com

**Type 2 diabetes accounts for >90 % of diabetic patients. It is considered to be another serious disease threatening human health after cardiovascular disease, cerebrovascular disease and cancer. The diabetes can cause eye diseases, chronic complications and acute complications, which will have a greater impact on people's physical and mental health and life. At present, type 2 diabetes is mostly caused by genetic and environmental factors, mostly due to islet cell defects and insulin metabolism abnormalities, which are accompanied by frequent urine, eating and fatigue. Thus, some type 2 diabetic patients exceed the standard of weight and seriously affect their normal health level. To exceed the standard of type 2 diabetes patients as the research object and randomly divided the subjects into experimental group and control group, the average age of the two groups was 36.78+2.43 y old and there was no significant difference in the body function before the experiment. The subjects in the control group were treated with conventional hypoglycemic drugs and normal dietary structure intervention. The subjects in the experimental group were treated with hypoglycemic drugs and low carbohydrate diet at the same time. A low carbohydrate diet favors whole grains, which are low in glycemic index and can reduce fat. The results showed that the blood glucose content of the experimental group was significantly lower than that of the control group after the experimental intervention and the data had significant statistical difference ($p<0.05$), and the lipid-lowering effect of the experimental group was significantly better than that of the control group. Dietary structure, lifestyle and exercise patterns will affect the health status of overweight or obese patients with type 2 diabetes.**

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# Effect of Nursing Mode Integrated with Omaha System on Patients' Self-Management after Percutaneous Coronary Intervention

YING CUI*

School of Business Administration, Liaoning Technical University, Huludao, Liaoning 125100, China, *E-mail: cy18640245916@163.com

Percutaneous coronary intervention is a therapeutic technique to improve myocardial perfusion. It is usually used in the clinical treatment of coronary heart disease. Coronary heart disease has high incidence rate and mortality rate and it poses a great threat to human health. In order to enhance the clinical efficacy of percutaneous coronary intervention and improve the quality of life of patients with coronary heart disease, effective nursing intervention is needed after percutaneous coronary intervention. In this study, Omaha System was applied to the clinical nursing mode. 172 patients with coronary heart disease who successfully underwent percutaneous coronary intervention were selected by convenient sampling and they were divided into control group and observation group. The patients in the control group received routine nursing and the patients in the observation group were given the nursing mode of integrating Omaha System. The self-management ability and quality of life of the two groups from d 1 to d 90 after percutaneous coronary intervention were compared and analyzed. The results showed that during the intervention, both groups of patients would show common nursing problems, including mental health, pain, substance abuse and so on; compared with the self-management level of patients 30 d after operation, the self-management level of the two groups was improved at 90 d after operation and the self-management ability of the observation group was significantly higher than that of the control group (p<0.05). The cognitive function of patients in the observation group and their satisfaction with the nursing mode were higher than those in the control group (p<0.05), which showed that the nursing mode integrated with Omaha System had a good application effect and had a positive impact on the improvement of patients' self-management ability after percutaneous coronary intervention.

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# Assessment of College Students' Mental Health Status and Analysis of Influential Factors under the Background of COVID-19

QINGYUE YU, Z. WANG[1], X. TANG[2] AND XUEJUN LIU*

College of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing 211106, [1]College of Medicine, [2]School of Management, Jiangsu University, Zhenjiang, Jiangsu 212001, China, *E-mail: xuejun.liu@nuaa.edu.cn

Under the pressure of academics, life, emotions, employment and so on, the college students are under tremendous psychological pressure. Their psychological problems have been very concentrated and prominent, which have become the focus of social attention and research hotspots in recent years. According to the relevant survey data, the mental health status of Chinese college students is worrying and a considerable number of them have negative psychological emotions. Among them, the problem of environmental change and psychological adaptation is more common and the great changes of environment easily cause psychological stress among college students. Therefore, it is important to characterize the mental health status of college students and analyze the related influential factors in order to implement targeted psychological interventions under the background of coronavirus disease epidemic. Based on Kessler Psychological Disease Scale (K6), this paper uses the cross-sectional survey method, designs and revises the questionnaire to conduct online questionnaire survey among college students in China. According to the survey data, logistic multiple stepwise regression analysis was used to further analyze the factors of affecting the mental health of college students. As a result, it is possible to comprehensively evaluate the psychological status of college students during the coronavirus disease epidemic and analyze the impact of various factors on it. The results of the study show that the incidence of negative emotions among college students has increased significantly during the epidemic, with varying degrees of psychological problems of anxiety and depression. Age, economic status, physical health, family relationships and cognition of the coronavirus disease epidemic are all closely related to mental health of college students. It can be seen that the coronavirus disease epidemic not only increases the threat to the physical health of college students,

but also has a serious negative impact on their psychological health. The online questionnaire allows for the timely detection and quick and precise intervention of psychological problems among college students, offering the possibility of ensuring good psychological health of college students during the coronavirus disease epidemic.

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# Guidance Strategy for Rehabilitation of Patients after Recovery During COVID-19 Epidemic Prevention and Control

X. ZHANG*

Sports Institute, Northeast Electric Power University, Jilin 132012, China, *E-mail: zhangxuefei2021@126.com

New coronavirus disease is seriously attacking the body's immunity. Even if the patient recovered later, it may still have some effect on the future life of the patient; therefore, improving the patient's immunity after the recovery will effectively improve the patient's physical condition. Exercise rehabilitation training can effectively help patients recover their immunity. However, due to the current implementation of a series of epidemic normalization prevention and control measures, the rehabilitation training of patients after recovery has been affected. The patients' resistance and immunity are poor, and they can easily develop into severe patients after infection. Therefore, a strategy of rehabilitation exercise for patients during the period of coronavirus disease prevention and control is put forward: Psychological counseling for patients with long time indoor environment can alleviate the anxiety of patients during the epidemic. Objective to study the related principles of the application of exercise therapy in the rehabilitation training of patients, and to link the principles with the epidemic prevention and control criteria to develop an appropriate exercise rehabilitation plan. We should fully integrate social resources and use sports professionals to assist medical professionals to improve the sports rehabilitation model. According to the different stages of patients' recovery, the corresponding training methods were adopted. At each stage, the attending doctors evaluated the patients' physique. Physical training and physical therapy will be combined to further consolidate the physical function of patients. In order to help patients maintain normal exercise rehabilitation training during the epidemic prevention and control period through the guidance strategy.

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# The Impact of Acceptance of Commitment Therapy Intervention Program on the Nursing Care of Patients with Colorectal Cancer Stoma

YALI SHI, HONGWEI YU1, LIHUI WANG AND J. Y. MIAO2*

Department of Gastrointestinal Surgery, 1Department of Nursing, 2Department of Internal Medicine and Neurology, The Second Hospital of Hebei Medical University, Shijiazhuang 050000, China, *E-mail: mjy17745786835@163.com

Understand the current status of psychological resilience of patients with colorectal cancer stoma and its influencing factors, analyze the relationship between psychological resilience, medical coping styles, social and psychological adaptation, and use the intervention program of acceptance and commitment therapy to improve the psychological resilience of patients with colorectal cancer stoma, self-esteem level

and adaptation level. From April 2021 to June 2021, a total of 40 patients undergoing radical resection of colorectal cancer in our hospital for 3 mo were selected as the research objects and they were divided into control group and experimental group with 20 samples each. The control group carried out routine nursing intervention and the observation group carried out nursing intervention based on the routine nursing under the guidance of acceptance and commitment therapy. The body image disorder self-rating scale and the self-esteem status scale were used to measure the two groups of patients before and after the intervention, to observe and compare the body image disorder score and self-esteem score of the two groups before and after the intervention. Before the intervention and 3 mo after the intervention, the patients' mental resilience, adaptability and self-care ability were evaluated respectively. The total score of mental resilience of patients with colorectal cancer in the observation group was higher than that in the control group. The average scores in each dimension were 3.7 points for toughness, 4.2 points for optimism, 3.9 points for self-esteem and 4.5 points for adaptation. Applying the intervention program of acceptance and commitment therapy to patients with colorectal cancer stoma can significantly improve the patient's self-esteem level, alleviate the patient's physical disorder and psychological problems and promote the patient's postoperative social adaptation level.

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# The Effect of Aerobic Exercise on the Body of Adolescents under the Background of the Coronavirus Disease 2019

T. M. SUN AND XIAOMEI NIE[1]*

Sport Institute, Northeast Electric Power University, Jilin 132012, [1]Department of Physical Education, Jiangsu University of Technology, Changzhou 213001, China, E-mail: niexiaomei2021@126.com

The coronavirus disease 2019 has a certain degree of impact on all walks of life, such as delays in school opening. With the orderly prevention and control of the epidemic, when school begins, if young people do not have a strong physique, they are very vulnerable to the coronavirus disease 2019. In order to improve the physical system of young people, this article discusses the effects of aerobic fitness on young people's bodies. The impact of aspects is discussed and studied. Using the questionnaire survey method, set the frequency of aerobic fitness exercise, each exercise time and other questions and fully understands the aerobic fitness exercise of young people. Through group test, research and analysis of the effects of aerobic exercise on the body of adolescents in the context of the epidemic. In the aerobic exercise group, the diastolic blood pressure is lower than that of the less exercise group. The vital capacity, grip strength and maximum oxygen uptake can effectively improve the body's immunity, which is significantly higher than that of the less exercise group. The survey results are significant differences. The body mass index and body fat percentage of adolescents in the long-term aerobic exercise group were significantly lower than those in the less exercised group, indicating that long-term aerobic exercise can significantly improve the physical condition of adolescents, enhance their physical fitness, effectively improve their physical function state and health level and have a positive significance for the prevention of coronavirus disease 2019.

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# The Fusion System of College Physical Education and Clinical Rehabilitation Nursing Curriculum under the Background of Coronavirus Disease 2019

X. F. ZHANG*

Sports Institute, Northeast Electric Power University, Jilin 132012, China, *E-mail: zhangxuefei2021@126.com

As the coronavirus disease 2019 develops across the country, all college sports courses can be reorganized around the development trend of the coronavirus disease 2019. The clinical rehabilitation nursing courses can be closely linked to the physical education courses of colleges and universities, and they can be combined and integrated, and special courses can be opened to improve the physical quality of students and improve their physical functions. Based on the theory of traditional Chinese medicine rehabilitation and the practice of physical education curriculum as the carrier, the physical education teaching in colleges and universities is closely integrated with the vocational skills training of using traditional Chinese medicine rehabilitation in the treatment of coronavirus disease 2019 in clinical rehabilitation nursing. Using traditional Chinese medicine therapy and massage therapy combined with sports, it can effectively fight the coronavirus disease 2019 and has a unique practical effect. The integration system of college physical education and clinical rehabilitation nursing courses can significantly improve students' medical understanding. Through the study of the theoretical knowledge of Chinese medicine rehabilitation, it can promote the sound development of sports and can effectively enhance the immunity of students against the virus. Through the integration of college physical education and the clinical rehabilitation nursing curriculum system, to teach students systematic sports theoretical knowledge and combined with clinical rehabilitation nursing skills, students can develop healthy exercise habits, stabilize personal physical functions and promote epidemic prevention.

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# The Impact of Dragon Boat Race on Athletes' Immune Function under the Background of Coronavirus Disease 2019

X. F. ZHANG*

Sport Institute, Northeast Electric Power University, Jilin 132012, China, *E-mail: zhangxuefei2021@126.com

Faced with the major impact of the coronavirus disease 2019 across the country, athletes with strong physical fitness are not immune to strong athletes because their bodies are often in extreme conditions. Immunity is the body's own defense mechanism, which can enhance athletes' physical strength and endurance through dragon boat races, and improve athletes' immune prevention, immune stability and immune surveillance functions. By consulting domestic and foreign literature related to dragon boat racing, combined with the current development trend of coronavirus disease 2019, after collating and analyzing the data, the research summary and analysis of dragon boat racing athletes' physique was carried out. Dragon boat racing can significantly improve athletes' specific aerobic capacity. Lymphocytes, monocytes and other related cells in the athlete's body are highly active, which can effectively enhance the athlete's immune function. Dragon boat racing can effectively enhance the physical function of athletes, improve the human body's ability to recognize and eliminate invading viruses; improve athletes' physical fitness. The stronger the immunity, the lower the probability of illness, which has a positive effect on stabilizing the development of the epidemic.

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# The Evolution of Mobile Smart Cloud Platform-Enabled Self-sustaining Healthcare Ecosystem

YANG LIU, L. W. Tian*

School of Information Engineering, Shenyang University, Shenyang 110044, China, *E-mail: tlw@syu.edu.cn

**China is the most populous country with the largest aging population in the world. The number of people with chronic diseases continues to increase. However, high-quality medical resources are concentrated in few big cities. The whole country faces the challenges of unbalanced structure of healthcare service system, shortage of healthcare workers, increasing medical costs and inefficient national medical insurance system. Information and communications technology and internet enable solutions to these issues. The mobile smart cloud platform is a new technology development that has been used to improve healthcare service. This paper focuses on mobile smart cloud platform from ecosystem perspective. This paper considers a case that leverages mobile smart cloud platform to build a self-sustaining healthcare ecosystem, which helps alleviate the increasing service crisis within China. The construction of such an ecosystem promotes the restructuring and evolution of China's healthcare industry, which traditionally is largely concentrated in urban areas. This article focuses on the following key issues, which is the key actors of the mobile smart cloud platform-enabled healthcare service ecosystem influence each other in China. The mobile smart cloud platform-enabled healthcare service ecosystem evolves over time and facilitate orchestrated actions across all relevant societal actors to alleviate the service crisis in China's healthcare industry. To solve these problems, this research uses a single case study method to examine the effect of the mobile smart medical cloud platform. The investigated healthcare ecosystem of this research has evolved through three phases, each corresponding to the macro, meso or micro level. In each of these levels, the number and types of actors engaged in healthcare services, as well as the breadth of services provided, differ. Multiple elements of the ecosystem have progressively evolved and reinforced one another to create a dynamic system that is economically sustainable, scalable and can accelerate transformation. By documenting the cooperative nature and dynamics of the ecosystem's evolution, the insights presented in this paper may serve as the rationale for future research topics. The study has important implications for the design of healthcare mobile smart cloud platforms and the service ecosystem-based approach to address complex problems.**

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# Effect of Modern Physical Training Treatment Mode on Alleviating Cognitive Impairment

T. SUN AND XIAOMEI NIE[1]*

Sports Institute, Northeast Electric Power University, Jilin 132012, [1]Department of Physical Education, Jiangsu University of Technology, Changzhou, Jiangsu 213001, China, *E-mail: niexiaomei2021@126.com

**Dementia is a chronic degenerative disease of the central nervous system. It usually has the characteristics of chronic or progressive. There are often a variety of functional disorders of higher cortex, mainly manifested in the decline of cognitive functions such as memory, thinking, orientation, understanding, calculation, learning ability, language and judgment ability. This study evaluated the current situation and correlation of cognitive function and social function of the elderly with mild cognitive impairment in the community, and verified the effect of modern physical training treatment mode on improving the cognitive function and social function of the elderly with mild cognitive impairment, in order to provide a reference sports intervention scheme for the nursing of the elderly with mild cognitive impairment in the community.**

80 mild cognitive impairment elderly people who met the research criteria were randomly divided into experimental group (40 cases) and control group (40 cases). The control group was given health education on cognitive impairment related diseases on the basis of receiving routine medical and health services and the experimental group was given modern physical training treatment mode for 3 mo on the basis of the control group, and the scores of simple mental state scale and functional activity questionnaire were observed. After the intervention, the total score of simple mental state scale and the scores of attention and calculation, delayed recall and language in the experimental group were significantly higher than those before the intervention (p<0.05). There was no significant difference in the total score of simple mental state scale and the scores of each dimension in the control group (p>0.05). After the intervention, the score of the experimental group was significantly higher than that of the control group (p<0.05). After the intervention, the total score of functional activity questionnaire and attention understanding items in the experimental group were significantly lower than those before the intervention (p<0.05) and the score was significantly lower than that in the control group. The modern physical training treatment mode can improve the cognitive function and social function of the elderly with mild cognitive impairment and provide a set of operable sports scheme for the nursing of the elderly with mild cognitive impairment in the community.

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# Construction of College Students' Mental Health Management System under the Background of COVID-19

BAILIN GE, M. LI AND Z. MA*

School of Management, Jiangsu University, Zhenjiang, Jiangsu 212001, China, *E-mail: mzq@ujs.edu.cn

Since the coronavirus disease epidemic, colleges and universities have carried out a series of colorful mental health education and achieved great results, but there are some shortcomings in mental health management. In recent years, with the increase of academic pressure, the rapid development of the internet and the increase of life pressure, the mental health level of college students has declined. Based on the reality that the mental health problems of college students are more serious, this study analyzes the current situation of mental health management in colleges and universities by combing and reviewing relevant theories. At the same time, based on the effective questionnaire and interview data of Jingjiang College of Jiangsu University, this paper analyzes the current situation and existing problems of mental health management of college students in this school, in order to promote the effective and efficient management of mental health, so that college students can really enjoy the benefits brought by mental health management. First of all, this paper explains the core concepts of college students' mental health management, including three management theories: New public management theory, system management theory and contingency management theory. Then, the current situation of mental health management of students in Jingjiang College of Jiangsu University was analyzed. The survey results showed that the current awareness of mental health management of college students was not high, the recognition of management work was not enough and the psychological professionals were less equipped. On this basis, the organizational structure, management functions and management activities of the school's mental health management are further discussed. It is found that the school has made some achievements in the management of college students' mental health and has carried out abundant psychological education activities. But at the same time, combined with the actual research situation and relevant theoretical knowledge, it is found that the school's mental health management understanding is not in place, the lack of conditions and security, the lack of strategic development planning and the lack of cross-departmental communication. Finally, suggestions are put forward from the aspects of concept construction, activity carrier construction, organization construction and evaluation system construction, so as to strengthen

the support mechanism of mental health management and create the cultural atmosphere of mental health management in colleges and universities. Carry out differentiated key management for different students, strengthen the cooperation mechanism between departments of the management system, and establish cooperative relations outside the management system. At the level of evaluation system construction, it is necessary to improve the construction of mental health evaluation of college students, bring mental health management into the performance appraisal system of relevant personnel and construct the mental health management information system. Committed to the construction of a more perfect college mental health management system.

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# An Intelligent Analysis Model of the Correlation between Sand and Dust Weather and Respiratory System Diseases

K. YANG, Y. CUI[1]*, JIN WU AND ZIYANG JIANG

Linshu Meteorological Bureau, Linyi Meteorological Bureau, Linyi 276004, 1School of Logistics, Linyi University, Linyi 276005, China, *E-mail: effeelling@126.com

The dusty weather will cause the concentration of total suspended particles and inhalable particles in the atmosphere to increase and the air quality will decrease, which is extremely harmful to the human respiratory system. Therefore, in order to understand the correlation between sand and dust weather and respiratory diseases, and to better prevent and treat respiratory diseases caused by dust particles, an intelligent analysis model can be built to provide effective early warning of sand and dust weather. The daily outpatient visits for respiratory diseases in tertiary first-class hospitals from 2019 to 2021 were surveyed and the non-seasonal summation autoregressive moving average model was used to obtain the growth trend of the hospital's daily outpatient visits. Through the acquisition of meteorological and random interference factor data, the impact of dust weather on respiratory diseases is analyzed and the semi-parametric generalized addition model of time series is used to intelligently analyze the total suspended particles and inhalable particles in the atmosphere. According to the model, the sand and dust weather is obvious from March to May of the year. The total suspended particles in the atmosphere have increased significantly and the daily average concentration of inhaled particles has increased significantly. The daily average relative humidity, temperature, sulfur dioxide and nitrogen dioxide of the air the level also have a significant upward trend and the number of consultations for respiratory diseases is relatively large. Through the intelligent analysis model, the impact of sand and dust weather on the health of the population can be effectively reduced. According to the trend of changes in the value of total suspended particles and inhalable particles, early warnings are given to patients with respiratory diseases, reducing the number of trips and taking preventive measures in advance.

## Acknowledgements:

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# The Necessity of Applying Biomechanics Knowledge in the Course of Strength Training

T. SUN AND XIAOMEI NIE[1]*

Sports Institute, Northeast Electric Power University, Jilin 132012, [1]Department of Physical Education, Jiangsu University of Technology, Changzhou, Jiangsu 213001, China, *E-mail: niexiaomei2021@126.com

**Sports biomechanics is an applied science to study the laws of human motion mechanics. Sports biomechanics knowledge can help equipment strength training personnel understand the human body's organizational structure and physiological characteristics and can help equipment strength training students improve the training effect and prevent equipment strength training injury. But in the actual equipment strength training course, training teachers often pay attention to this some knowledge is not valued, so students are easy to make mistakes and even cause training damage. The application of biomechanical knowledge in equipment strength training course plays an important role in studying training movement technology, establishing movement technology principle, establishing movement technology mode and optimizing equipment strength training course. Its purpose is not only to make clear the main points of action technology, but also to make students know how to do it and why to do it, so as to stimulate students' interest in learning and desire for knowledge. Using and instilling the theoretical knowledge of sports biomechanics is an effective teaching means and method, which plays a positive role in optimizing the strength training method of equipment; therefore, it is necessary to study the application of biomechanical knowledge in equipment strength training, in order to provide some theoretical basis for equipment strength training teachers.**

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# Innovative Design and Biological Effect Analysis of Rehabilitation Medical Products in the Field of Medicine

CHUNYAN CAO*

School of Art, Taiyuan University of Science and Technology, Taiyuan 030021, China, *E-mail: 13903517501@163.com

**With the development of social economy and the improvement of universal health care consciousness, the modern rehabilitation medical products in the field of medicine has been difficult to meet the needs of users and with the deepening reform of medical system, in the policy, technology, capital, under the joint action of continuously inject new tremendous momentum for rehabilitation medical products field. Therefore, this paper mainly analyzes the innovative design and biological effect of rehabilitation medical products in the field of medicine. Considering the rehabilitation in the design of medical products in the field of medicine for aesthetic demand and consumption psychology, learning to accept ability request, for the safety of products, such as size and function for the detailed design, to realize medical rehabilitation medical product innovation in the field of design, thus can design out really satisfy the physiological and psychological needs of consumer goods. On this basis, the biological effects of the rehabilitation medical products designed in this paper are analyzed, including the promotion of blood circulation, the promotion of metabolism and regeneration, anti-inflammation, etc. The rehabilitation medical products designed in this paper can effectively reduce the psychological damage of patients, promote the development of human physiological parameters towards a healthy level, accelerate the rehabilitation efficiency of patients and also promote the further development of the innovative design of related rehabilitation medical products. The innovative design of rehabilitation medical products in the field of medicine is an important development direction**

**in the future. Therefore, the innovative design of rehabilitation medical products and its biological effects were analyzed to make the designed products truly meet the psychological and physiological needs of users and lay a foundation for improving the efficiency of rehabilitation training for patients. The research of this paper enriches and improves the design of rehabilitation medical products, which has practical application value, and further promotes the development of rehabilitation medical products. The full understanding and understanding of the biological effect mechanism of rehabilitation medical products can counteract the design of rehabilitation medical products and more practical products related to life, health and disease treatment can be designed.**

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# Intelligent Management of Clinical Application of Antibacterial Drugs Based on Improved Single-Shot Detector Algorithm

YING CUI*

School of Business Administration, Liaoning Technical University, Huludao 125100, China, *E-mail: cy18640245916@163.com

**To explore the measures for standardizing the administration of clinical use of antimicrobials and improve the quality of medical treatment. An intelligent management method for clinical application of antimicrobials based on improved single-shot detector was proposed. Take a hospital as the research object; collect the patient information, operation information, examination information and doctor's order information needed in the course of antibacterial drug use. Based on the single-shot detector detection algorithm of deep learning, a nested network is added. The frequency (defined daily dose), cost ratio and intensity of antimicrobial drugs used in a hospital from 2015 to 2020 are taken as training samples and fuzzy noise is added into the samples to increase the sample attributes. Finally, pooling technology is used to process the data instead of sampling and the use of drugs during several years is analyzed. The reason of irrational use of antimicrobial drugs was summarized and intelligent management methods were put forward. By 2020, the defined daily doses of antimicrobial drugs in the hospital decreased by 12 % compared with 2015 and the overall structure of drug use changed greatly, of which the defined daily doses of injections decreased by 10.13 %. Single-shot detector algorithm can effectively monitor the use of antimicrobial agents in hospital to prevent the unreasonable use of antimicrobial agents and reduce the emergence of drug-resistant strains. We should further deepen the reform of medical system, develop and make use of rational drug use decision system and monitoring system to ensure standard drug use.**

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# Investigation and Reflection on the Development of Mass Sports from the Perspective of COVID-19

XIANSHENGJIN* AND JIAOXIA CHEN

Jiaozuo Normal College, Jiaozuo 454000, China, *E-mail: Jinxiansheng2021@163.com

Sudden coronavirus disease violation of the people's health, this article through the investigation and analysis through this event, people's understanding of sports fitness and lifestyle changes, so as to guide the masses in a more scientific consciousness of fitness activities, exercise more, break bad habits, pay attention to health, physical fitness, improve their immunity and care for others, care about society and the formation of a new ethos. At present, the coronavirus disease epidemic has become a hot topic of academic research and various disciplines have carried out discussions from their own perspectives. However, there is a lack of research on the relationship between sports and epidemic. In this paper, based on the epidemic situation of the new crown, mass sports and medical services and other data, the comprehensive use of literature, research and interview, expert interview, logical analysis, comparative method, summary induction method, etc., to investigate the people's cognition of physical fitness and lifestyle during coronavirus disease. Clarify the research framework and steps; during the field visit and communication survey of coronavirus disease, people's understanding and thinking on physical fitness and lifestyle; collect and sort out existing literature and data according to the research content and framework; to clarify the main direction and general outlook of the investigation and research. On the basis of the above work, solid investigation and research and do a good job in the relevant data, data statistics, collation and other work to form a report. The research shows that there is an inverse correlation between the development level of mass sports and the severity of the epidemic of the New Champions League. Mass sports plays a positive role in the prevention and control of the epidemic of the New Champions League, which is mainly reflected in the following aspects: Physical exercise is the health guarantee and rehabilitation means for the prevention and control of the epidemic; sports facilities are the basic condition of health service. Sports science is a necessary link in the establishment of epidemic response mechanism. The coronavirus disease event the livelihood of people, had a huge impact on the society, but it brought positive influence to people's physical life, the people got the unprecedented concern for the physical fitness of ascension, to have a healthy body to resist diseases had the experience, the importance of quickly raised a hot wave of fitness, mass sports demand and way of life began to change. In particular, the event of coronavirus disease made people realize the fragility of life and the concept of health first and urged people to pay more attention to physical exercise consciously. It also enhanced the leaders at all levels' re-understanding of the importance of mass sports, strengthening national physic, preventing and treating diseases, and improving national strength.

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# Uncertainty in Information Dissemination during the COVID-19 Pandemic: A Social Media Perspective

Y. ZHANG*

Institute of Communication Studies, Communication University of China, Beijing 100024, China, *E-mail: zhangyingpei86@keyaninfo.com

Public health events give rise to various mixed personal feelings, like public fear and anxiety. Individuals are eager to seek correlated information to relieve the uncertainty of a certain event. Therefore, information disseminated on social media by news service plays an important role in strengthening or weakening the uncertainty within public health events. Taking coronavirus disease as a typical public health event, this paper attempts to figure out the specific function of different social media service amidst the construction

of uncertainty on China's Weibo platform. Firstly, the author monitors China's mainstream media, commercial media and professional media on a trending Chinese social media platform. In other words, People's Daily, Toutiao news and DXY news on Weibo end is selected as the main data source. Secondly, equidistant sampling is used to capture posts and comments via keyword searching on COVID-19 and coronavirus disease from 31st December 2019 to 30th March 2020. The main reason for time slicing is that the first Weibo news related to coronavirus disease appeared on 31st December 2019. And Wuhan, Hubei Province as the most severely affected area in China, declared the total clearance of patients on 10th March 2020. All data is crawled with an analysis software named Gooseeker. At last, the posts released by news service were initially categorized as status quo of the epidemic, self-protection information and governmental prevention information. To deeply describe pragmatic nature, those posts also classified into three types according to theories of communication and uncertainty management, namely, probabilistic information, complex information and fragmentary information. On one hand, both complex information concerns self-protection, governmental prevention and fragmentary information concerns status quo of the epidemic contribute to reduce uncertainty. The function of probabilistic information in general boosts uncertainty. On the other hand, People's Daily released the most governmental prevention among the news services. Toutiao news posts the most status quo of the epidemic. DXY news is centered with self-protection. Meanwhile, the public relied more on professional consultation released by DXY news to reduce uncertainty during the first wave of the epidemic. The mainstream media began to gain the position of speaking and strategic leadership during the second wave of the epidemic. Commercial media like Toutiao news had no apparent impact on weakening the uncertainty during the coronavirus disease epidemic. Moreover, with time passing by, news services in general can play a very important role in alleviating the uncertainty among mass audience. Mainstream media and professional media plays a crucial part among public health events in China. Information concerning governmental prevention and self-protection are inclined to reduce uncertainty. Probabilistic information released by any news services is more likely to increase uncertainty.

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# Influence of Positive Psychology on Employees' Safety Behaviour

YAN WANG, SUXIA LIU*, WEN LI AND JINGJING ZHONG1

Jiangsu University, School of Management, Zhenjiang 212000, 1Changzhou Institute of Technology, School of Economics and Management, Changzhou 213022, China, *E-mail: ujs1110@126.com

Studies have shown that 80 %-90 % of the accidents are caused by people's unsafe behaviours. Human behaviour by its psychological effects of different mental states leads to different behaviours. During the special period of the coronavirus disease-19, employees generally face negative emotional and psychological pressures such as anxiety and panic. It is very important for enterprises and society to stimulate individual employees' own strength, relieve their psychological pressure, help them form a good psychological state and ensure safe behaviours in their production. Positive psychology is a revolution in the field of psychology and a new milestone in the history of human social development. It advocates studying the positive qualities of human beings, tapping the inherent potential constructive power of human beings, promoting the development of human and society. And it emphasizes the common influence and interaction between human internal positive forces and the external environment such as groups and social culture. The application of positive psychology concept analysis of employee safety act of production will be more effective in reducing the incidence of unsafe behaviours. To reveal the influence of employees' positive psychology on their safety production behaviours, this study takes the connotation of employees' positive psychology as an entry point to analyse the impact of positive psychology from the perspective of safety. This study collects data through field interviews with employees of five different types of companies and

uses grounded theoretical methods to analyse the data. The study found that the positive psychology of employees has a direct relationship with their safe production behaviour. It is found that too high positive psychology can lead to excessive confidence; too low positive psychology can lead to abnormal psychological state; positive psychology can display the best safety literacy in a moderate state. It turns out that too high a positive psychology can lead to excessive confidence; too low a positive psychology leads to an abnormal mental state. Only when a positive psychology is in a moderate state can one exert the best safety literacy. This research theoretically analyses the influence of employees' positive psychology on their safety behaviours, proposes to improve employees' positive psychological state from the aspects of self-cognition, emotional experience, safety atmosphere and sense of belonging to the company, and trigger their safe production behaviours. The results of this study the formation and behaviour to promote safe production staff positive state of mind, safety and production plays an important role.

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# Experimental Teaching Research on Induced Differentiation of Colorectal Cancer Cells Based on Internet of Things Technology

W. LIU*

School of Education, Hanjiang Normal University, Shiyan 442000, China, *E-mail: kimgrape@163.com

Colorectal cancer is one of the common malignant tumors, including colon cancer and rectal cancer. It occurs between the ascending colon and sigmoid colon and between the dentate line and sigmoid colon. There are different incidence rates in different regions. The incidence rate of colorectal cancer in China is only incidence rate of lung cancer, gastric cancer and liver cancer. At present, the main treatment for colorectal cancer is surgical resection, supplemented by chemotherapy and radiotherapy, but the side effects are large and the recurrence rate is high. It is imperative to find new drugs for the treatment of colorectal cancer. In this study, different shikonin concentration gradients (0, 2, 4, 6 μ) LoVo of colorectal cancer cells was treated with mol/l for 24 h μ LoVo of colorectal cancer cells with different time gradients (0, 12, 24 and 48 h) were treated with shikonin mol/l. The apoptosis rate was measured by flow cytometry combined with annexin V-FITC/propidium iodide double staining and the expression and cleavage of caspase-9 protein were detected by Western blot. One way analysis of variance was used for comparison between groups and least significant difference-t test was used for pairwise comparison between groups. The results show that it is similar to 0 μ LoVo of colorectal cancer cells treated with mol/l for 24 h, 2, 4 and 6 μ. The apoptosis rate [(6.94±1.02) % was higher than (10.61±1.12) %, (15.55±1.35) %, (36.51±1.46) %] at mol/l; and 4 μ compared with LoVo of colorectal cancer cells treated with shikonin for 0 h, the apoptosis rate [(1.33±0.59) % vs. (19.23±1.24) %, (22.24±1.41) % and (28.41±1.52) %] at 12, 24 and 48 h was significantly higher (p<0.001). When shikonin dose ≥2 μmol/l, when the treatment time was ≥12 h, the expression of caspase-9 protein was up-regulated and induced to activate. After pretreatment with caspase-9 inhibitor (z-lehd-fmk), the apoptosis rate of LoVo cells decreased by 38.7 % (p<0.05). Therefore, shikonin can induce colorectal cancer cell apoptosis through the expression of caspase-9 protein and its cleavage activity.

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# Effect of Back Cupping Therapy Combined with Compound Xiaofeng Powder on Patients with Skin Diseases

Q. ZHANG*, HONG LI AND FEI LI[1]

Department of Dermatology, [1]Emergency Department of Orthopedics, Gansu Provincial Hospital of Traditional Chinese Medicine, Lanzhou, Gansu 730050, China, *E-mail: xueyuan990325@163.com

**Chronic urticaria is a very common dermatological disease encountered in clinical work. Traditional Chinese medicine attributes it to "addictive rash". Its clinical manifestations are transient, localized and edematous wind mass, accompanied by severe pruritus and some can be accompanied by systemic symptoms such as fever, shortness of breath, abdominal pain and diarrhea, which are life-threatening in severe cases. To compare the clinical efficacy of two different therapeutic schemes of Fengque powder and cupping therapy for chronic urticaria 80 patients with wind heat chronic urticaria who met the inclusion criteria were randomly divided into treatment group and control group, with 40 cases in each group. The treatment group was treated with back cupping, Shenque cupping and Xiaofeng powder, and the control group was treated with Xiaofeng powder. The scores of the two groups were evaluated according to various efficacy indexes before treatment, 2 w of treatment and 4 w of treatment and the efficacy before and after treatment were analyzed according to statistics. The results showed that the total effective rate was 92.50 % in the treatment group and 77.50 % in the control group. There was significant difference between the two groups (p<0.05), indicating that the curative effect of the treatment group was better than that of the control group. Both the treatment group and the control group were effective in the treatment of wind heat type chronic urticaria; the two groups were equally effective in improving the number, size, duration, number of episodes, skin scratch sign and pruritus; the use of back cupping, Shenque cupping and Xiaofeng powder can more effectively control the recurrence rate of wind heat chronic urticaria, with better long-term curative effect and no adverse reactions.**

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# The Dissemination Effect of Medical Pathology Digital Short Video Based on the Effect of Attractive Details

Y. HE*

College of Humanities and Communications, Hainan University, Haikou 570228, China, *E-mail: znbl666@126.com

**In recent years, the new media environment has continued to change, internet technology has gradually upgraded and the film and television production industry has also ushered in new opportunities and challenges. Major platforms have begun to transform and innovate. The construction of digital short videos for medical pathology has been very mature, most of which are exploring from the perspective of video builders and the communication effect is an indispensable part of communication. The communication effect of medical pathology digital short videos is extremely important. Therefore, research on medical**

pathology digital short videos based on the attractive detail effect spread the effect. According to the theory of seductive details and controlled experiments, it analyzes the correlation (high, low) between seductive details and digital targets of medical pathology, the contextual interest (high, low) triggered by seductive details to medical pathology and the impact of achieving similar digital goals. Research has found that low-level relevant temptation details are conducive to the realization of medical pathology digital goals; contextual interest plays an intermediary role in the realization of temptation details and medical pathology digital goals. This research can improve the audience's memory and learning motivation.