

due to dystrophy, 45 degrees Cobb's angle's thoracolumbal scoliosis, bilateral contracture of the hip, the knee, and the ankle, only lying down on a bed for six years. We conducted chest physical therapy, passive range of motion exercise for the upper extremities, and occupational therapy for maximizing hand function. The progression of his neuromuscular conditions are challenging us to design a seating modification from the less expensive materials but allow the patient to do some activities on the seating and maintain correct position with some form of firm but comfortable support. **Results:** After providing a seating modification, the patient is able to do some activities while sitting and it can maintain the patient in a correct and comfortable position. His new chair has already made a great difference to his quality of life. **Conclusion:** The modification of available equipment and some physical therapy can encourage anything which makes an individual's life more independent and enjoying leisure and hobby comfortably.

0521PP065

KINEMATIC ANALYSIS OF SPIKING MOVEMENT IN VOLLEYBALL PLAYERS WITH SHOULDER PAIN

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Purpose: Eighty percent of the shoulder injury is caused by spiking movement among volleyball players. However, there has been no study examining shoulder kinematics during spiking movements in injured players. Therefore, the purpose of this study was to compare the movement of glenohumeral joint, scapula, and trunk during spiking between volleyball players with and without shoulder pain. **Materials and Methods:** We plan to recruit 20 university volleyball league players with shoulder pain and 20 controls for the study. Ten players of each group finished the data collection so far. An electromagnetic tracking system was used to collect kinematic data of the upper limb and trunk during spiking movement. Two-way analysis of variance was used to compare the between group differences. The study was approved by the ethical committee of National Yang-Ming University, Taipei (IRB number 1000091). **Results:** Subjects with shoulder pain demonstrated less glenohumeral horizontal adduction angle at 3 time points: ball contact ($p=0.017$), occurrence of maximum shoulder horizontal abduction ($p=0.044$) and of the maximum glenohumeral external rotation ($p=0.026$) as compared to the controls. There was a trend of less scapular poster tilting in the injured group at the moment of ball contact ($p=0.053$). **Conclusion:** Decreased glenohumeral horizontal adduction was associated with shoulder pain in university volleyball players, which should be addressed in training and treatment of young volleyball players.

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REHABILITATION MANAGEMENT OF PROLONG MECHANICAL VENTILATOR IN CHRONIC INFLAMMATORY DEMYELINATING POLYNEUROPATHY PATIENT

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Background: The mechanical ventilatory support is needed when the ventilatory and gas exchange capabilities of the respiratory system fail. In chronic inflammatory demyelinating polyneuropathy, respiratory failure could happened, accompanied by deconditioning syndrome after long immobilization. There are many important issues involved in the management of a prolong mechanically ventilated patient. Factors such as cardiorespiratory system, psychological factor, and neuromuscular competence, must be considered to succeed the weaning process. **Case report:** A 4-year-old girl, referred to RSCM from other hospital, was ventilator-dependent for 10 months, and had general weakness. She was conscious, active, could sit by leaning on bed, on ventilator with tracheostomy, and intake via NGT.

The hemodynamic system was stable, no paresis of n.cranialis, chest was in normal limit except the stem at upper region lobes. Extremities were hypotrophies. **Materials and Methods:** The main goal was to improve the functional capacity. We started the programs: patient spent time mostly sitting without back support, chest expansion exercise, strengthening of lower extremities muscles, standing using AFO and backslab, balance exercise, as well as psychosocial support. All programs were done while playing. **Results:** After 2 months programs, she could breath spontaneously in 1 h and stand independently. One month later she could walk independently and ride the 4-wheel bicycle with gradually increased distance, and 2-h spontaneous breathing. After 4 months program, she could take the ventilator off about for 3 h, and could eat orally. **Conclusion:** Rehabilitation program has important role to increase functional capacity and make the recovery process faster for prolong mechanical ventilator patient e.c. CIDP.

0521PP070

THE SYNERGISTIC EFFECTS OF COLD-WATER SWIMMING EXERCISE IN COMBINATION WITH MESENCHYMAL STEM CELL THERAPY ON SCIATIC NERVE CRUSH INJURY

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Purpose: Exercise and hypothermia have therapeutic benefits for nerve regeneration. In our previous study, amniotic fluid mesenchymal stem cells (MSCs) can augment growth of injured nerve, but full recovery of nerve function after MSCs transplantation was still limited. Therefore, the aim of this study was designed to investigate the synergistic effect of cold-water swimming exercise (CWS) combined with MSC transplantation in animals with crushed nerve injury on functional recovery. **Materials and Methods:** Peripheral nerve injury was induced in Sprague Dawley rats weighting 250 to 300 g by crushing a sciatic nerve using a vessel clamp with duration of 20 min. The MSC were embedded in fibrin glue and delivered to the injured site. CWS (19°, 5 min/day) was administered 12 h after operation for seven consecutive days. Sciatic function index (SFI), vertical activity (VA) of locomotion, angle of ankle (AA), electrophysiological studies, and histological analysis were evaluated to assess functional recovery and nerve regeneration. **Results:** The deterioration of neurological function was attenuated by CWS combined with MSC therapy. The combined therapy caused the most significantly beneficial effect. CWS treatment improved SFI, VA, AA, electrophysiology and suppressed the inflammatory responses which correlated with axonal nerve regeneration. **Conclusion:** These findings suggest that a CWS combined with MSC treatment can protect against sciatic nerve crush injury through modifying cellular environments, making it favorable for regeneration. Therefore, environmental reconditioning of injured site by combination of hypothermia and exercise will be substantial and feasible for nerve repair on crush nerve model treated with MSCs.

0521PP071

ELECTRICAL STIMULATION COMBINED WITH AMNIOTIC FLUID MESENCHYMAL STEM CELLS ENHANCE FUNCTIONAL RECOVERY AFTER PERIPHERAL NERVE INJURY

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Purpose: Regeneration of peripheral nerves is remarkably retards across traumatic injuries, limiting recovery of function. Various techniques have been investigated to enhance peripheral nerve regeneration including the application of electrical stimulation (ES) and the administration of amniotic fluid mesenchymal stem cells (MSCs). The purpose of this study was to investigate the effect of combining ES and MSCs therapies, in comparison to each sole modality.