

Fang-Chuen Huang , Hsieh YL* The effect of high-fluence low level laser therapy in animal model of rheumatoid arthritis.The Physical therapy Association of the Republic of China (Taiwan) The 38th Annual Congress and The 66th Scientific Conference, Taipei, TAIWAN. 23 March – 24 March, 2013. (Oral presentation)



中華民國物理治療學會

第三十八次年會暨第六十六次學術論文研討會

Physical Therapy Association of the Republic of China (Taiwan)

The 38th Annual Congress and The 66th Scientific Conference

地點： 國立陽明大學學生活動中心

日期： 民國 102 年 3 月 23 - 24 日

Location: National Yang-Ming University

Date : March 23-24, 2013

學術論文演講

陽明大學 學生活動中心(表演廳)

座長：鄭宇容 助理教授			
論文編號	報告時間	演講者	論文題目
1	9:00-9:15	林璟蒲	有氧結合阻力型運動對於血管新生的影響
2	9:15-9:30	陳怡靜	交替式有氧與阻力性運動訓練對靜態生活男性之血小板黏著的影響
3	9:30-9:45	黃方君	以動物模式探討高強度低能雷射對於治療類風濕性關節炎的效益
4	9:45-10:00	劉思雨	以兔子模式探討遠端肌激痛點乾針治療對於肌筋膜疼痛之可能調控機制
	10:00-10:45		壁報展示、點心時間
座長：王鐘賢 教授			
5	10:45-11:00	李雅芳	肌內效貼紮對肩胛關節本體感覺的影響- 初步結果
6	11:00-11:15	王媛黎	治療性複合式運動對老年族群執行功能與步態表現之訓練效果
7	11:15-11:30	施育欽	使用大鼠丘腦誘導出血之中樞中風後疼痛模型在島葉皮質探討有效 μ -類鴉片受體促進劑對不同鴉片受體拮抗劑的選擇性

*每位演講者時間為 15 分鐘：報告 12 分鐘，討論 3 分鐘

以動物模式探討高強度低能雷射對於治療類風濕性關節炎的效益

The Effects of High-fluence Low-level Laser Therapy in Animal Model of Rheumatoid Arthritis

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Background and Purpose: Rheumatoid arthritis (RA) is a chronic, inflammatory and systemic autoimmune disease that leads to progressive synovitis and cartilage destruction. This chronic inflammatory process stimulates proliferation of fibroblast-like synoviocytes, enhances activities of tumor necrosis factor- α (TNF- α) and matrix metalloproteinase-3 (MMP3), and then leads to cartilage destruction. Low-level laser therapy (LLLT) is the proven and recommended intervention for managing RA on alleviating pain. But the effective fluence of LLLT on prevention of the development of synovitis and cartilage destruction in RA is still controversial. The objective of this study was to assess the effects of LLLT at different fluences on RA-related synovitis and dysfunction of chondrocytes in rats with inflamed joints. **Methods:** Monoarthritis was induced in adult male Sprague-Dawley rats (250-300 g) via intraarticular injection of complete Freund's adjuvant (CFA, 50 μ l) into the tibiotarsal joint. Three days after CFA induction, arthritic joints were irradiated with either high (72 J/cm²) or low (4.5 J/cm²) fluence of GaAlAs laser (660 nm) for 10 consecutive days. Functional evaluations including ankle circumference and paw mechanical withdrawal threshold were assessed. Arthritic ankles were collected for assessing inflammation, synoviocytes and chondrocytes by histological and immunofluorescent studies with Safranin O, 5B5, ED1, cartilage oligomeric matrix protein (COMP), TNF- α and MMP3. **Results:** LLLT at a fluence of 72 J/cm² significantly increased mechanical withdrawal threshold, reduced edema and the expressions of 5B5-, ED1- TNF- α - MMP3-like immunoreactivities. The expressions of COMP-like immunoreactivities were more significantly abundant in arthritic joint irradiated with 72 J/cm² than those with 4.5 J/cm². An intense Safranin O staining for detection of cartilage was found in animals received 72 J/cm² of LLLT. **Conclusions:** High-fluence LLLT has a prominent effect on reduction of nociception, synovial proliferation, inflammation, and chondrocyte degradation in RA model. **Clinical Relevance:** It was possible to suggest that the LLLT at high fluence has a positive effect on prevention of RA pathological progression.

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社團法人中華民國物理治療學會

理事長 鄭素芳

中華民國一〇一年五月二十三日

