

学会報告

14th World Congress of Physical Therapy (WCPT)
第14回世界理学療法連盟学会

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2003年6月7日から5日間、スペインのバルセロナに於いて第14回WCPTが開催された。4年前に開かれた横浜での第13回WCPTに続き本校からは2題の発表(次頁)が採用され、我々3名が参加する機会を得た。SARSが広がり国際学会にも影響が出ていた時期だけに心配されたが、日本のセラピストも多く参加していた。会場となった国際会議場は街の中心近くにあり交通の便も良かったが、案外質素な学会という感じがした。日程の都合で全てに参加することはできなかったが、口述発表やポスター会場を中心に各国からの発表を見聞きすることができた。また、十分とまではいかないが海外のセラピストと意見交換できる良い機会となった。国際学会だけあって各国の紹介コーナーでは賑やかな催しが行われ、イタリアのブースではギター片手に大声で

歌っていたのが印象的であった。ただ、学会参加費は非常に高く、途上国からの参加は大変であろうと思われた。

スペイン第2の都市バルセロナは、オリンピックの開催を機に国際学会も数多く誘致しているようで、思いのほか整備された美しい街であった。建築家ガウディのサグラダファミリアやグエム公園、ピカソ美術館など観光スポットも多い。6月のバルセロナは夜も8時頃までは明るく、学会の終わる夕刻からも十分楽しむことができた。

次回のWCPTはカナダで開催される。多くの成果を手世界中のセラピストがまた集うであろう。我々も国際的に評価される成果を積み上げるべく、一層の努力を重ねていきたいと思う。



DEOXYGENATION, MYOELECTRIC ACTIVITIES, AND LACTIC ACID ACCUMULATION IN THE VASTUS MEDIALIS MUSCLE DURING REPEATED ISOMETRIC KNEE EXTENSION EXERCISE.

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PURPOSE : The purpose of this study was to investigate the changes of blood volume, muscle oxygenation, and myoelectric activities in the vastus medialis muscle as well as the change of blood lactate concentration during repeated isometric knee extension exercise by maximal voluntary contraction. **SUBJECTS :** Eight healthy male subjects participated in this study after giving their informed consent. Their mean (SD) age, height, body mass, and body mass index were 20.6 (3.1) years, 170.4 (4.9) cm, 61.6 (6.0) Kg, and 21.2 (1.4) Kg/m², respectively. **METHODS :** Using an isokinetic dynamometer, the subjects performed isometric extension exercise of the right knee joint in the seated position with the knee flexed at 60 degrees from full extension. They repeated the maximal voluntary contraction of ten times. A contraction period was 6 seconds. And a relaxation period between performing each contraction was also 6 seconds. During repeated isometric exercise, the concentrations of oxygenated hemoglobin, deoxygenated hemoglobin, and total hemoglobin in the vastus medialis muscle (VM) were measured with a spatially resolved near-infrared spectrometer, and these values measured were expressed as the change rate to pre-exercise control value. The blood at finger tip was taken before the exercise and after 3 minute and 6 minute of it. The blood lactate concentration (BL) was measured with a blood lactate analyzer. On different days, the same exercise protocol was repeated to record surface electromyogram (EMG) from the VM. Values of mean power frequency (MPF) were calculated by performing a fast Fourier transform on each 3 seconds block of EMG data. **RESULTS:** In the VM during repeated isometric exercise, the blood volume increased gradually, while muscle oxygenation decreased gradually. And not only muscle oxygenation during contraction periods but during relaxation periods was significantly lower than those of the pre-exercise control value. Views of muscle fatigue were confirmed for the changes in blood lactate concentration and MPF. **CONCLUSION :** These results suggest that distribution of contraction-relaxation periods corresponding to contraction intensities must be considered in isometric strengthening exercise.

THE CHANGES OF SUBJECTIVE IMPRESSIONS IN THE PROCESS OF MOTOR LEARNING

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PURPOSE : The purpose of this study is to examine whether the subjective impressions of motor sense are effective as guidelines for motor learning. We examined the connection between the process of motor learning and subjective motor understanding. **RELEVANCE :** In motor analysis in physical therapy, we lay emphasis on measurable objective information observed from the outside rather than on performers' subjective information because of the difficulties in measuring the subjective information. While human movements follow the laws of physical motion, they also reflect the subjectivity of a performer. Therefore, in physical therapy, subjective and unclear expressions such as "You should feel..." have importance. The acquisition of a motor skill doesn't mean that the learner understands it on paper, but means the learner practices until it becomes automatic. **SUBJECTS AND METHODS :** Seven male students participated in this study. Taking monocycling as a motor task, the students continued their trials for a month. At the end of every trial, each student recorded their impressions of motor sense freely, such as what and how they felt, or what had changed. **ANALYSES :** Gathered motor impressions were categorized and relations between the process of motor learning and the contents of the impressions were analyzed by protocol analysis. **RESULTS :** The motor impressions recorded by the students reflected the characteristics of the task of monocycling. There were characteristic changes in motor sense impressions at each stage of the learning process. We expect that there is a possibility of coaching utilizing motor sense impressions in physical therapy.