35 - ACUTE EFFECT OF A POSTURE IN AN RPG SESSION IN EXTENSIBILITY AND STRENGTH OF LUMBAR MUSCLES OF SEDENTARY YOUNG

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INTRODUCTION

The wear suffered by the human body during activities of daily living and professional can be aggravated by inadequate postures, which cause an overload in the support structures. The mechanisms by which postural changes tend to result in an imbalance musculoskeletal, with shortening and decreased muscle strength, which in turn can lead to pain, for reasons such as compression on a nerve root, muscle spasms, joint instability and other.

There are many treatment techniques in order to improve posture, and thus restore body balance, among them the Global Posture Reeducation (GPR) which is a technique that applies physical therapy and concurrent active postures, isometric in eccentric positions of the muscles of static applied in progressively. (ROSSI et al., 2011). This method created in France by Philippe Emmanuel Souchard, advocates the use of certain specific postures providing the correct positioning of the joints and strengthening muscles, which correcting spinal disorders especially (MARQUES et al., 1994; MARQUES, 2010).

The purpose of GPR is lengthen shortened muscles through viscoelastic tissue, to improve the contraction of antagonist muscles, thus avoiding the posture asymmetry (BONETTI et al., 2010). The technique proposes an overall elongation of antigravity muscles, through a work based on the existence of muscular chains, taking an integrated view of the muscular system. (CUNHA et al., 2008)

During execution of the technique, there is a lengthening of the muscle structures for about 15 to 20 minutes, which does not allow compensations. This stretch is important because it is believed that a shortened muscle is able to create offsets in other muscles, and this may result in pain, dysfunction and mechanical changes (MALUF et al., 2010).

The chronic effect of the technique is well established and proven. However, considering that they are not publications as the immediate effect of specific postures of GPR and action in the strength and extensibility of the lumbar muscles, justified the execution of this research which aims to evaluate the acute effect of maintaining a single GPR posture in the strength and extensibility of the lumbar musculature and compare variables between two postures of the technique, one sitting and one lying.

MATERIALS AND METHODS

This research was conducted at the Center for Rehabilitation Physiotherapy Unioeste – Campus Cascavel-PR , during May and June 2012.

This is a clinical trial, non-randomized, and blinded by convenience sample. Included individuals aged between 18 and 30 years old, female, sedentary, without lesion worsened column and history of low back pain in the past three months. Twenty women participated voluntarily, they were directed to the group 1 (G1) or group 2 (G2) after the order of participation.

We analyzed two postures GPR, G1 held stance "frog in the air", supine, with the support of the lower wall, pelvic retroversion and rectification cervical, semi-knee flexion, abduction, external rotation with hip and feet in dorsiflexion with contact between the heels (figure 1). The G2 realized posture "seated at center," while remaining seated and upright, and with the same postural patterns of G1, however, the column not being supported. (Figure 2). During maintenance of postures, encouraged to self diaphragmatic breathing and body growth. In both positions the arms remained throughout the body, thus aiming to analyze only the difference in extensibility and strength to the spine resting on the ground, or from a seated position against gravity. Both groups performed just one of postures for 15 minutes and the therapist remained with verbal stimulation and manual correction of postural alignment and compensation during execution.



Figure 1. Representing the posture of "frog in the air" method RPG



Figure 2. Representation of the posture "sitting center" method RPG.

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The subjects were assessed prior to the posture immediately after and within 24 hours, and all reviews occurred in the afternoon. The variables analyzed were muscle strength and extensibility of the lumbar spine.

The evaluation of lumbar extension was made through the bank Wells Bench, a rectangular wooden device with a ruler graduated in centimeters willing to downtown. The subjects were positioned with the spine completely against the wall and legs in full extension then instructed to flex the trunk forward as much as possible without bending your legs. The data obtained in Wells Bench were recorded, being chosen as the best of three attempts. The lumbar strength was observed with the use of a

dynamometer Dorsal brand CROW, where individuals remained standing, barefoot, with lower limbs extended and performed a quick pull up the unit, having been used only one measurement at each assessment.

For statistical analysis we used the Shapiro-Wilk test, in which the data were not significant for the absence of normality, and the p-value greater than 0.05. Then we applied the Student t test for paired samples to compare the measurement before, after and 24 hours after laying with a significance level of 5%.

The mean age was 19.5 (± 2.12) in G1 and 20 (± 1.41) years in G2, calculated by using Microsoft Excel 2010.

RESULTS

Mean values and standard deviation in the measurements of extensibility and strength in lbs cm from each group obtained from three measurements are disposed in Table 1.

The table demonstrates that extensibility in sitting posture increased significantly immediately after laying GPR (p value 0.01131) and after 24 hours of therapy (p value 0.02219). In the supine position, there was no significant result in lumbar extensibility. Regarding power lumbar, no significant values were found in both postures, sitting and reclining.

Table 1 - Comparison of measurements of muscle strength and extensibility back in the pre, post and 24 hours after application of the two postures RPG

	EXT G1	EXT G2	FORÇA G1	FORÇA G2
PRÉ	24,1± 7,4	22,7± 8,8	63 ±11,9	62±14,9
PÓS	25,2± 7,4	25,4 ± 7,5 *	63,2 ± 11,1	63,3 ± 14,7
24H PÓS	24,7 ± 7,9	24,8 ± 7,7 *	62,5 ± 9,6	60,9 ± 12,9

PRÉ: Medida antes da postura; PÓS: Medida imediatamente após a postura; 24H PÓS: Medida após 24 horas de realização da postura; EXT: extensibilidade da musculara lombar em centímetros; FORÇA: Força da musculatura lombar em kilogramas.

*Valores significativos com p<0,05.

DISCUSSION

The GPR beyond the long-term effects, it also provides immediate effect, as the results found by Rossi et al (2011), who applied the frog posture on the floor in sedentary young women once and immediately evaluated. The results showed that one session was enough to improve the position of the head and shoulder, but were not analyzed how long these effects linger. In the present study, we investigated two different positions, being only featured a sitting posture center (G2) promoted gain immediate extensibility lumbar muscle significantly (p <0.05), which can be explained by the increased need for control to maintain a posture against gravity.

Although both values immediately after and 24 hours after the group G1 having significant solids as the result of pre posture, there is a slight decrease in the third assessment, suggesting that a single session may not be effective for maintenance of the values obtained. Furthermore, as regards Teodori (2005), one session may not be able to allow the learning of the correct posture information, it may interfere with the results.

When analyzing the variable strength from positions held as the GPR, met described by Guirro et al. (2001) that the increased muscle strength relative to gain extensibility effects in humans as stretching mechanism is provided by the use of elastic potential energy in shortening of muscles. It is likely that instead of stretching adversely affect the transmission of force he exerts a positive effect in this process by generating a stress concentrated in the muscle during its duration (ROSARY et al. 2008). However, it was not possible to verify a significant strength increase sharply with the execution of static stretching in this study.

While not being a measurement of the study, it was observed that all patients after performing both positions reported any discomfort or pain, in both immediate evaluation, as 24 hours later. According to Uchida (2008) the feeling of soreness soon after beginning an exercise program, can often lead to an unpleasant experience practitioner in relation to exercise, and thus limit some functions. Thus, it is assumed that one of the measures that prevented the acute improvement in group 1 of extensibility and strength in both groups may have muscle pain these sedentary individuals.

It is suggested that further clinical studies are developed on the acute effect of GPR, in order to search persist for as long as the results obtained and that the time required for structural change occurring in musculoskeletal system.

CONCLUSION

The GPR technique can provide gains extensibility lumbar immediately after a single session, maintaining the effect for 24 hours, when the "sitting at the center" posture is utilized. However, the supine position is not effective when it comes to this increased extensibility. Regarding strength, the application of both positions in just one session, are not effective for lower back strength gain. Attention should be paid to the fact that a single session may not be enough for learning achievement posture correctly, and this possibly be a limiting factor in the results.

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ACUTE EFFECT OF A POSTURE IN AN SESSION IN EXTENSIBILITY AND STRENGTH OF LUMBAR MUSCLES OF SEDENTARY YOUNG

ABSTRACT

Object: This study aimed to evaluate the acute effect of maintaining a single GPR stance in the strength and extensibility of the lumbar musculature and compare variables between two postures of the technique, one sitting and one lying.

Methodology: This is a clinical trial, non-randomized study, where 20 women were divided into group 1 (G1) and group 2 (G2) randomly. These were subjected to a posture of RPG "frog in the air" and "sitting at the center", respectively. The subjects were assessed prior to the posture immediately after and within 24 hours. The variables analyzed were extensibility, through the Wells Bench and muscle strength of the lumbar spine, dorsal through a dynamometer.

Results: As for extensibility in the seated position, it increased significantly immediately after laying GPR (p value 0.01131) and after 24 hours of therapy (p value 0.02219). As for other variables, no significant result.

Conclusion: The GPR technique can provide gains extensibility back immediately after a single session, maintaining the effect for 24 hours, when the "sitting at the center" posture is used.

KEYWORD: global postural reeducation, extensibility lumbar, power lumbar.

EFFET AIGU D'UNE ATTITUDE DANS UNE SESSION RPG EXTENSIBILITÉ ET LA FORCE DU LOMBAIRE MUSCULATURE JEUNE SÉDENTAIRE

RÉSUMÉ

Objectif: évaluer l'effet aigu de maintenir une position unique RPG dans la force et l'extensibilité de la musculature lombaire et comparer des variables entre deux postures de la technique, l'un assis et un mensonge.

Méthodes: Il s'agissait d'un essai clinique, étude non randomisée, où 20 femmes ont été divisés en groupe 1 (G1) et le groupe 2 (G2) au hasard. Ceux-ci ont été soumis à une posture de RPG "grenouille dans l'air» et «assis au centre", respectivement. Les sujets ont été évalués avant la posture immédiatement après et dans les 24 heures. Les variables analysées étaient extensibilité, à travers la Banque de Wells et la force musculaire de la colonne vertébrale lombaire, dorsale grâce à un dynamomètre.

Résultats: L'extensibilité dans la position assise, il a augmenté de manière significative immédiatement après la pose de RPG (valeur p 0,01131) et après 24 heures de traitement (valeur p 0,02219). Comme pour les autres variables, aucun résultat significatif.

Conclusion: La technique GPR peut fournir une extensibilité gains revenir immédiatement après une seule séance, avec maintien de l'effet pendant 24 heures, lorsque la position assise" centre" est utilisé.

MOTS-CLÉS: rééducation posturale globale, l'extensibilité lombaire, lombaire électrique.

EFECTO AGUDO DE UNA ACTITUD EN UNA SESIÓN RPG EXTENSIBILIDAD Y FUERZA DE LA LUMBAR MUSCULATURA JOVEN SEDENTARIO

RESUMEN

Objetivo: Evaluar el efecto agudo de mantener una postura RPG solo en la fuerza y extensibilidad de la musculatura lumbar y la comparación de variables entre las dos posturas de la técnica, una sentada y una mentira.

Métodos: Se realizó un ensayo clínico, no aleatorizado, donde 20 mujeres se dividieron en grupo 1 (G1) y grupo 2 (G2) al azar. Estos fueron sometidos a una postura de RPG "rana en el aire" y "sentado en el centro", respectivamente. Los sujetos fueron evaluados antes de la postura inmediatamente después y en 24 horas. Las variables analizadas fueron la extensibilidad, a través del Banco de Wells y la fuerza muscular de la columna lumbar, dorsal a través de un dinamómetro.

Resultados: La extensibilidad en la posición de sentado, se incrementó de forma significativa inmediatamente después de la puesta RPG (valor de p 0,01131) y después de 24 horas de tratamiento (valor p 0,02219). En cuanto a otras variables, ningún resultado significativo.

Conclusión: La técnica GPR puede proporcionar extensibilidad las ganancias de regreso inmediatamente después de una sola sesión, con el mantenimiento del efecto durante 24 horas, cuando la posición de sentado" el centro" se utiliza.

PALABRAS CLAVE: global reeducación postural, extensibilidad lumbar poder, lumbar.

EFEITO AGUDO DE UMA POSTURA EM UMA SESSÃO DE RPG NA EXTENSIBILIDADE E FORÇA DA MUSCULATURA LOMBAR DE JOVENS SEDENTÁRIAS

RESUMO

Objetivo: objetivo avaliar o efeito agudo da manutenção de uma única postura de RPG na força e extensibilidade da musculatura lombar e comparar as variáveis entre duas posturas da técnica, sendo uma sentada e outra deitada.

Método: Trata-se de um estudo clínico experimental, não-randomizado, onde 20 mulheres foram divididas em grupo

1 (G1) e grupo 2 (G2) aleatoriamente. Estas foram submetidas a uma postura de RPG “rã no ar” e “sentada ao centro”, respectivamente. Os indivíduos foram avaliados antes da realização da postura, imediatamente após e no intervalo de 24 horas. As variáveis analisadas foram extensibilidade, através do Banco de Wells e a força muscular da coluna lombar, através de um dinamômetro dorsal.

Resultados: Quanto à extensibilidade na postura sentada, a mesma aumentou significativamente, imediatamente após a postura de RPG (p valor 0,01131) e após 24 horas da terapia (p valor 0,02219). Quanto às outras variáveis avaliadas, não houve resultado significativo.

Conclusão: A técnica de RPG pode proporcionar ganhos de extensibilidade lombar imediatamente após uma única sessão, com manutenção do efeito durante 24 horas, quando a postura "sentada ao centro" é utilizada.

PALAVRAS-CHAVE: reeducação postural global, extensibilidade lombar, força lombar