08 - THE INFLUENCE OF THE BRACELET "POWER BALANCE" NO STATIC AND DYNAMIC BALANCE OF HEALTHY INDIVIDUALS

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INTRODUCTION

During evolution, the man took the bipedal posture, which allowed him a wider field of vision and easy to perform manual work (WOOD, 2010). To adapt ourselves to the more unstable posture, we had the need to adjust the balance system of the species during the evolutionary process, and currently rely on individual experiences that occurred during the acquisition of psychomotor development to position relative to gravity (SA and Pereira et al, 2003).

Physically, the balance is understood as the ability to keep the center of mass of matter in relation to its support base, that is, the resulting state of the body when viewed distinct forces acting on it will compensate and cancel each other (Suzuki et al, 2005). In relation to humans, the balance can be defined as physical fitness can maintain the dominance of the body in different postures, positions and attitudes, providing the same support that opposes the action of gravity (Silva et al, 2008).

According to the needs of the body to adapt to different situations encountered, we can divide the balance in static or dynamic. The static equilibrium is the body's ability to remain stationary in a certain position, while dynamic balance is the ability of the individual to remain in the same posture when moving from one point to another (Gallahue et al, 2003).

Thus, in order to improve balance, increase strength, develop a greater range of motion and create an overall well-being, the American brand Power Balance - performance technology, created a band known as Power Balance ®, which contains two embedded quantum hologram, which according to the company are programmed with frequencies that naturally interact with the electromagnetic field of the human body. On the company website it is argued that the human body works from the result of electromagnetic reactions, and the technology developed in the band connects to the energy field, creating a circuit that improves and increases the body energy distribution to the maximum (POWER BALANCE , 2011).

However, the manufacturer of the Power Balance bracelet ®, aims to highlight that in addition to reports made by famous people who have used the bracelet, there is no more scientific proof that the band actually has a functionality to improve physical fitness, the possibility of getting it has only a placebo effect (GENESTRETI, 2011).

In view of this we decided to perform this work in order to verify the influence of the Power Balance bracelet ® in static and dynamic balance in healthy subjects practicing physical activity.

METHODOLOGY

- Sample

The selected population consisted of young adult males and females aged between 18 and 34 years, students of the Faculty of Physical Education of Metropolitan Blumenau - FAMEBLU, UNIASSELVI group. As the respondents reported never having attended a similar program activity, the population was classified as intact.

- Groups of the experiment

The static and dynamic balance of the participating individuals was evaluated in three different ways, forming different groups in the experiment: a) Experimental group (GE) with the use of strap Power Balance ® b) Control Group (CG) without the use of bracelet, and c) negative control group (GCN) who used a fake bracelet was clipped from the hologram.

- Tests for assessment of the balance

For evaluation of equilibrium parameters were used two specific methods, and the Stork Stand Test Walk test before and after.

The Stork Stand Test was used to evaluate the static equilibrium. This test is performed with the individual standing on one leg and then immediately dominating the individual places the other foot on the contralateral medial knee support. The hands are resting on the hip and to be given a sign the individual withdraws the hindfoot and midfoot support the foot on the ground. Three trials are conducted and the test result is the time to balance longer.

Testing of Anterior and Posterior March aimed to evaluate the dynamic equilibrium. The test is performed with the subject walking in a line of 6 meters, with the heel of one foot must always be in contact with the edge of the other foot during movement. The march is done primarily in anterior displacement is noted and the time of the route. Then the timer is reset and register the time used to carry out the course of 6 meters during the later shift. It is a foul if the person assessed steps out of line or out of balance, but the timer is not reset, the subject should return the correct position and continue the test. For this test, is used a line composed by a velcro strip to facilitate the perception of the individual who is barefoot. The material used was a stopwatch and tape Velcro (rough part of the tape), 6 feet long and 5 inches wide.

RESULTS AND DISCUSSION

We evaluated 21 subjects of the course students physical education FAMEBLU - Metropolitan College of Blumenau, with 13 (61.9%) males and eight (38.1%) females, aged between 18 and 34 years. The distribution of physical education students participating in the survey according to age, shows that there was a prevalence in the period between 19 and 25 years old and therefore a search with a predominance of young individuals.

To evaluate the static and dynamic balance in SG (experimental group), CG (control group) and BCM (negative control group), respectively, the tests were performed: Stork Stand Test Walk and testing of anterior and posterior. Regarding the static balance test, the average time obtained by the research groups was 18.18 seconds in the GC of 18.47 seconds in the GE and 18.30 seconds in the GCN, as can be seen in the presentation of the graph 2. It should be noted that the better the static

equilibrium, the greater the time spent in the position described.

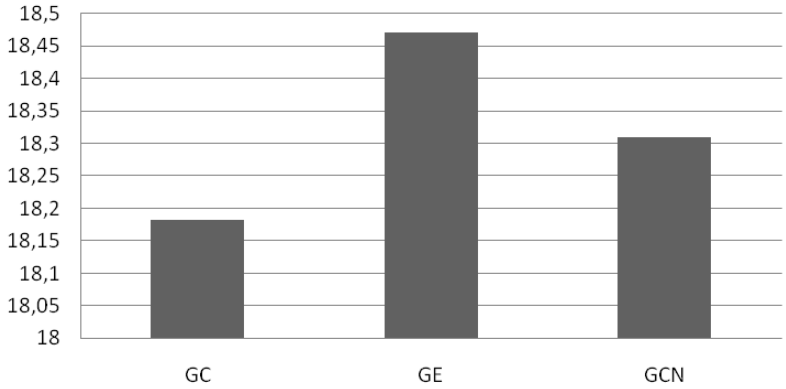

CHART 2 - AVERAGE TIME IN STATIC BALANCE TEST.

These groups compared statistically with respect to the static equilibrium, no significant differences, as in the analysis of variance, P is greater than 0.05, with a value of 0, 998.

According to Gallahue et al. (2003), the balance is the basis for all movement and sensory stimuli is influenced by visual, auditory, tactile or painful, proprioceptive and vestibular.

In our sample analyzed subjects reported no changes to present visual, auditory, tactile, proprioceptive and vestibular. Thus, as the averages for the evaluation of static equilibrium, it is observed that there was no influence of the bracelets, and similar ® Power Balance in relation to sensory information.

For Duarte (2010), through each position taken by humans, neuromuscular responses are transmitted to keep the desired posture. To maintain that posture control, we need the cooperation of the nervous system, sensory and motor, to implement the correct posture. Since the sensory system understands and identifies the position of the body segment in relation to other segments and the environment. However, the motor system is responsible for group fitness muscle fibers responsible for that because of movement or posture. Thus the central nervous system standardizes the information sent by the sensory system, sending nerve impulses to muscles to neuromuscular responses to arise.

According to the statistical analysis obtained for the static balance test in our sample, we can affirm together with a description of Duarte (2010) that the Power Balance bracelets and similar ® did not influence the activity of the nervous system in relation to motor control during the activities performed neuromuscular responses to maintain posture in the test, since the averages were not significantly different.

Thus our findings agree with research Teruya et al. (2011), where a survey was conducted with 12 healthy adults to evaluate the use of a strap balance in postural control of adults, using a 3D accelerometer instrumented with a data acquisition system, postural changes were not identified.

In relation to the dynamic test, it was tested by anterior displacement and posterior displacement. In anterior dislocation, ie, in front of the dynamic test, observe, that the CG obtained an average of 18.42 seconds, 16.58 seconds and GE GCN 17.32 seconds, also showed no significant difference in assessment, as we give in Figure 3. It should be noted that this balancing test, the faster is the transit time for the tape, without the presence of faults, the better the dynamic balance presented by the individual.

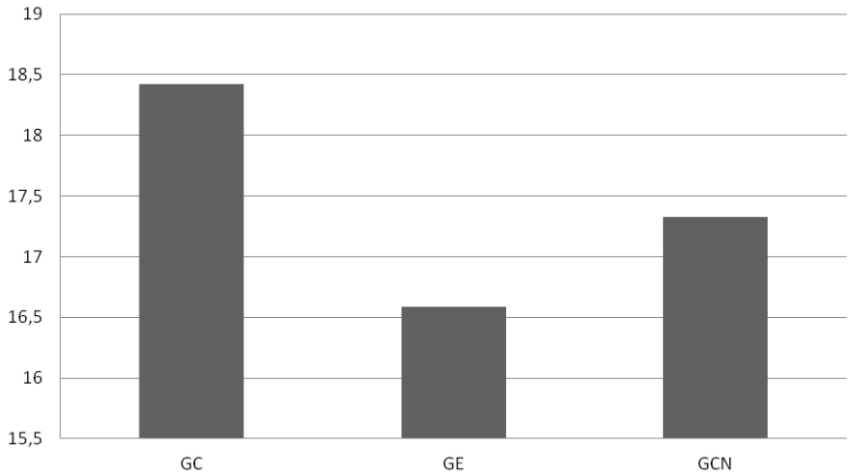

CHART 3 - AVERAGE TIME IN TEST OF ANTERIOR DISLOCATION.

These groups compared statistically in relation to the balance of an earlier move forward dynamic test showed no significant differences, as in the analysis of variance, P is greater than 0.05, with a value of 0, 804.

The dynamic test on his back, had the longest average, where the group had an average GC of 20.08 seconds, 21.19 seconds and the SG group an average of 20.83 BCM, represented in Figure 4. It should be noted that this balancing test, the faster is the transit time for the tape, without the presence of faults, the better the dynamic balance presented by the individual.

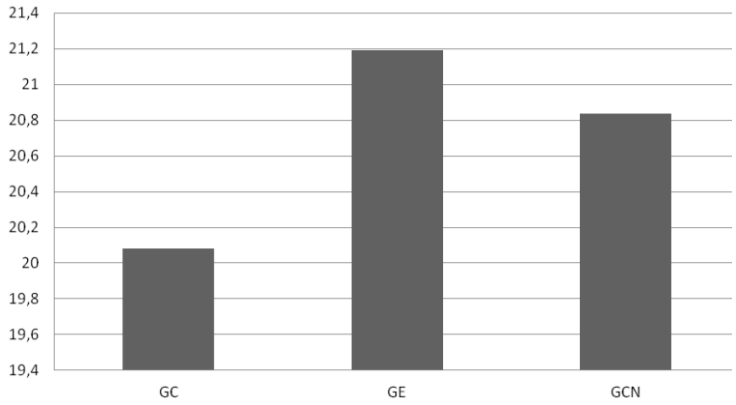

CHART 4 - AVERAGE TIME TRAVEL BACK IN TEST.

These groups compared statistically in relation to the balance of posterior movement, dynamic test on his back, did not show significant differences, as in the analysis of variance, P is greater than 0.05, with a value of 0, 947.

For Nogueira et al (2009), the main structure necessary to maintain the dynamic balance is the vestibular system, it is an absolute reference for the other systems, visual and somatosensory. And researchers say that the work was completed with exercises that stimulate the vestibular system directly affects the maintenance of dynamic equilibrium, as they influence the vestibular nuclei needed to maintain your balance.

However, in our groups was not observed any significant difference between groups, leading us to conclude that the bracelet also has no effect on the vestibular system. We can also observe that there is no gain as the placebo effect by the Power Balance bracelet ® and similar, as noted in SG and BCM, respectively.

Thus, our data agree with those of Porcari et al. (2011) that aimed to assess whether use of the Power Balance bracelet ® could improve trunk flexibility, balance, strength and lower body power. For both study evaluated 42 athletes, and used the test trunk flexibility, balance and static strength tests appear on the site of the Power Balance bracelet ® (www.powerbalance.com / video test). The vertical jump test was added as a test of lower body power. Assays were carried out with the Power Balance bracelet ® and a placebo, with the order of the bracelets was randomized and the tests were conducted in a double-blind study. As a result, there was no significant difference in flexibility, balance, strength or vertical jump height between the Power Balance ® and placebo conditions. However, there was difference in flexibility, balance, strength and vertical jump in making the first test for the second, regardless of which band used, which was attributed to the fact that individuals are more heated and used to the task.

There is a consensus regarding a placebo effect in sports, according to Beedie (2007). Based on studies in the literature, there is no positive aspect to the use of balance bracelet as a way to modify the static and dynamic balance. Thus, as the only way found to alter the balance, regular practice of physical activities.

FINAL CONSIDERATIONS

We concluded, therefore, that the band had no effect on qualitative and not quantitative tests in individuals who exercise regularly. It can be seen statistically that the band really did not contribute to a better conditioning before the static and dynamic balance provided in the appropriate tests used in research. Also like the strap used in the study had no effect biopositivos from equilibrium, ruling out the possibility of placebo effect by using the strap. According to the literature, therefore, the physical activity is the best way to modify and maintain static and dynamic balance, and thus should be stimulated by physical educators and physiotherapists in their clinical and preventive activities.

REFERÊNCIAS

BEEDIE, C. J. Placebo effects in competitive sport: Qualitative data. **Journal of Sports Science and Medicine**, Bursa, v.6, p.21-8, 2007.

DUARTE, M.; FREITAS, S. M. S. F. Revisão sobre posturografia baseada em plataforma de força para a avaliação do equilíbrio. **Rev Bras Fisioter,** São Carlos, v.14, n.3, p.183-92, maio/jun, 2010.

GALLAHUE, D. L; OZMUN, J. C. **Compreendendo o desenvolvimento motor: bebês, crianças, adolescentes e adultos.** 2ª edição. São Paulo: Phorte, p.641, 2003.

MADEIRA, Miguel Carlos. **Anatomia Da Face**. 7ª edição. São Paulo: Sarvier, 2010.

NOGUEIRA, C. R.; SHIBATA, J; GAGLIARDI, J. F. L. **Comparação do equilíbrio estático e Dinâmico entre atletas com deficiência visual praticantes de goalball e atletismo.** Repositório aberto da Universidade do Porto, 2009.

PULSEIRA POWER BALANCE. Disponível em: <http://www.pulseirapowerbalance.com>. Acesso em: 15 set, 2011.

PORCARI, J.; HAZUGA, R.; FOSTER, C.; DOBERSTEIN, S.; BECKER, J.; KLINE, D.; MICKSCHLT.; DODGE, C. Can the Power Balance® bracelet improve balance, flexibility, strength and power? **Journal of Sports Science and Medicine**, v. 10, n.1, p.230-31, 2011.

SÁ, V. W.; PEREIRA, J. S. **Influência de um programa de treinamento físico específico no equilíbrio e coordenação motora em crianças iniciantes no judô**. Rev. Bras. Ciên. e Mov. Brasília, v. 11, n. 1, p. 45-52, janeiro, 2003.

SILVA C.A.C.; RIBEIRO G.M.; RABELO R.J. A influência da dança no equilíbrio corporal de deficientes visuais. MOVIMENTUM **Revista Digital de Educação Física,** Minas Gersis, v.3, n.1, Fev./Jul, 2008.

Suzuki S, Gugelmim M R G, Soares A V. **O equilíbrio estático em crianças em idade escolar com transtorno de déficit de atenção/hiperatividade**. Fisioterapia em Movimento. v.18, n.3, p.49-54, 2005.

TERUYA, T. T; MATARELI, B. M; ROMANO, F. S; MOCHIZUKI, L. Pulseiras de equilíbrio melhoram o equilíbrio estático? **Anais do III Congresso de Iniciação Científica em educação Física** – CICEF – USP/UNICAMP/UNESP, 08 e 09 de Setembro de 2011.

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THE INFLUENCE OF THE BRACELET "POWER BALANCE" NO STATIC AND DYNAMIC BALANCE OF HEALTHY INDIVIDUALS

ABSTRACT

Postural balance refers to the alignment of the joint segments needed to keep the center of gravity within the limits of stability. Currently the is a propaganda in the media of a bracelet that has the effect of improving balance, muscle strength and range of motion. The manufacturer of the band admits that the effects are immediate and directly reacting positively in the electromagnetic field of the human body. However, the same scientific evidence is scarce. The aim of this study was to evaluate the influence of the bracelet before the Power Balance ® static and dynamic balance of healthy subjects and physically active. Thus, the groups were divided as GE (experimental group) who used strap Power Balance ®, CG (control group) not used bracelet and GCN (negative control group) who used a placebo bracelet. Regarding the results, there was no statistical difference between the tests of static and dynamic balance applied to different groups. Therefore, the Power Balance wrist showed no significant improvement over the static and dynamic balance and so little a placebo effect was observed by Power Balance bracelets and similar.

KEYWORDS: Static balance. Dynamic equilibrium. Bracelet. Power Balance®.

INFLUENCE DE LA "POWER BALANCE" BRACELET AUCUN ÉQUILIBRE STATIQUE ET DYNAMIQUE DES INDIVIDUS SAINS.

RÉSUMÉ

L'équilibre postural se réfère à l'alignement des segments communs nécessaires pour maintenir le centre de gravité dans les limites de stabilité. Actuellement, lesupport est la propagande d'un bracelet qui a pour effet d'améliorer l'équilibre, la force musculaire et l'amplitude des mouvements. Le fabricant de la bande admet que les effets sont immédiats et directement réagir positivement dans le champ électromagnétique du corps humain. Cependant, les mêmes preuves scientifiquessont rares. Le but de cette étude était d'évaluer l'influence du bracelet Power Balance avant l'® équilibre statique et dynamique de sujets sains et physiquement actifs. Ainsi, les groupes ont été répartis comme GE (groupe expérimental) qui ont utilisé dragonne Power Balance ®, CG (groupe contrôle) n'est pas utilisée etbracelet en GCN (groupe témoin négatif) qui ont utilisé un bracelet placebo. En ce qui concerne les résultats, il n'y avait aucune différence statistique entre les testsd'équilibre statique et dynamique appliquée à des groupes différents. Par conséquent, la Balance ® Power strap n'ont montré aucune améliorationsignificative sur l'équilibre statique et dynamique et si peu a été vu par un effet placebo ® bracelets Power Balance et similaires.

MOTS-CLÉS: équilibre statique. L'équilibre dynamique. Bracelet. ® Power Balance.

LA INFLUENCIA DE LA "POWER BALANCE" PULSERA NO EQUILIBRIO ESTÁTICO Y DINÁMICO EN SUJETOS SANOS

RESUMEN

Equilibrio postural se refiere a la alineación de los segmentos articularesnecesarios para mantener el centro de gravedad dentro de los límites de estabilidad. En la actualidad los medios de comunicación es la propaganda de un brazalete que tiene el efecto de mejorar el equilibrio, la fuerza muscular y el rango de movimiento. El fabricante de la banda admite que los efectos son inmediatos y directamente una reacción positiva en el campo electromagnético del cuerpo humano. Sin embargo, la evidencia científica misma es escasa. El objetivo de esteestudio fue evaluar la influencia de la pulsera antes de que el Power Balance ®equilibrio estático y dinámico de los sujetos sanos y físicamente activos. Por lo tanto, los grupos se dividieron de la GE (grupo experimental), que utiliza la correaPower Balance ®, CG (grupo control) no brazalete utilizado y GCN (grupo de control negativo) que utilizaron un brazalete placebo. En cuanto a los resultados, no hubo diferencia estadística entre las pruebas de equilibrio estático y dinámicoaplicado a los diferentes grupos. Por lo tanto, el Poder correa ® Balance no mostró ninguna mejora significativa sobre el equilibrio estático y dinámico y tan poco fue visto por un efecto placebo ® pulseras Power Balance y similares.

PALABRAS CLAVE: equilibrio estático. Equilibrio dinámico. Pulsera. Power ® Balance.

INFLUÊNCIA DA PULSEIRA "POWER BALANCE" NO EQUILÍBRIO ESTÁTICO E DINÂMICO DE INDIVÍDUOS SADIOS.

RESUMO

O equilíbrio postural refere-se ao alinhamento dos segmentos articulares necessários para manter o centro de gravidade dentro dos limites máximos da estabilidade. Atualmente encontra-se na mídia a propaganda de uma pulseira que tem o efeito de melhorar o equilíbrio, a força muscular e a amplitude de movimento. A empresa fabricante da pulseira admite que os efeitos sejam imediatos reagindo positivamente e diretamente no campo eletromagnético do corpo humano. Porém, as comprovações científicas da mesma são escassas. O objetivo dessa pesquisa foi avaliar a influência da pulseira Power Balance® diante do equilíbrio estático e dinâmico de indivíduos sadios e praticantes de atividade física. Dessa forma, foram divididos os grupos como: GE (grupo experimento) que a utilizou pulseira Power Balance®; GC (grupo controle) que não utilizou pulseira e GCN (grupo controle-negativo) que utilizou uma pulseira de efeito placebo. Em relação aos resultados, não houve diferença estatística entre os testes de equilíbrio estático e dinâmico aplicados aos diferentes grupos. Portanto, a pulseira Power Balance® não apresentou melhora significativa em relação ao equilíbrio estático e dinâmico e tão pouco foi observado um efeito placebo pelas pulseiras Power Balance® e a similar.

PALAVRAS-CHAVE: Equilíbrio estático. Equilíbrio dinâmico. Pulseira. Power Balance®.