BALANCE AND BODY MASS RELATIONSHIP CASE" GIRLS IN MENSTRUATION PERIOD"

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Abstract

Our experience is based on the period of grill life, exactly when they transitions from childhood to adulthood Especially in Menstruation where the girl is turning into a woman. From that, our interest based on Balance, which is the ability to maintain the body's center of mass over its base of support the complexity of the human balance system, creates challenges in diagnosing and treating the underlying cause of imbalance.

The literature reveal that, Vestibular dysfunction as a cause of imbalance offers a particularly intricate challenge because of the vestibular system's interaction with cognitive functioning in our case we have chosen our subjects visual sensitivity equal 10/10. To evaluate the correlation between body mass index (BMI) and postural balance as Relationship between the pivot base (Area of the instep) within adulthood (period of Menstruation). From that, our subjects were 15 middle school girls who do not practice any physical activity where their Ranging Aged located between 13.14 and their selection was intentional as condition that they Menstruation for the first time and accepted volunteered to participate in our experience for a period of one academic year. In order to observe changes caused by the period we have distributed the sample depending on the base of equation BMI, and calculation of the center gravity based on the law of the lever from the test of Balance Board . To verify the hypothesis that support:

- Which differences and relationship can be observed at the end of the school year (2014-2015) between the variables Selected for study?

From that, our aims for this study interest:

- Observing the changes caused by the period based on the data used in the experiment.
- explains the effects of the independent variable (age characteristics) on the dependent variable (the ideal weight and balance).

For that, we have chosen the analysis the correlation to compare the implementation differences and the relationship that can be observed between the variables Selected for study. Based in the results accuses and Age properties we confirm: (1) Move away from the ideal weight contributes to obesity and Flat instep; (2) There is a strong relationship between Pivot base, balance and the ideal weight (3) Incompatibility of the Tall with ideal weight contributes to the weakness of the focal base (flatness instep), which contributes to the loss of balance.

Key words: Balance, body mass, pivot base.

1. INTRODUCTION

Balance is the ability to stay upright or stay in control of body movement, in all activities, whether stationary or mobile, balance plays an important role. Some activities require static balance whereas many sports require athletes to maintain stability during highly dynamic tasks. Static balance is maintaining equilibrium when stationary, while dynamic balance is maintaining equilibrium when moving. From that (Gray Cook, 2003) confirmed the Athletic Body Balance is the first guide of its kind to show you how to train for smooth, fluid movement and prevent muscle imbalances, mobility restrictions, stability problems, and injuries.

From that we confirms that, Balance is 'the ability to retain the center of mass (gravity) of the body above the base of support with reference to static (stationary) or dynamic (changing) conditions of movement, shape and orientation .

In our case, we have chosen a period where the girls transitions from childhood to adulthood Especially in Menstruation where they are turning into a woman.

Our set came from background that the hormonal factors play an important role to disclosure obesity, from this vision we have chosen the analysis the correlation to compare the implementation differences and relationship can be observed at the end of the school year (2014-2015) between the variables selected for study based on of the classification the (BMI) index. Were, our aims interest:

- Observing the changes caused by the period based on the data used in the experiment.
- Explains the effects of the independent variable (age characteristics) on the dependent variable (the ideal weight and balance).

2. Material and Methods

We have chosen the Test of balance based on Balance Board Test the fig1 (a-b) Balance Board

- **Purpose:** to measure whole body balance

  Equipment required a wooden balance platform measures measuring 50 x 50 x 1.5 cm, with a small 2 cm wide beam running lengthwise down the middle beneath it. Small stoppers are placed on the comers of the platform so that the board cannot tilt more than 18°. Contacts connected to a timer are placed on the underside of the platform, exactly in the middle of the left and right halves.

- **Procedure:** The participant is instructed to stand on the platform with toes pointed outward (15°) and heels 15 cm apart. The participant must try to keep the platform balanced for a period of 30 seconds. The timer stops when the contacts touch the floor. After one practice trial, the best score of three trials.
  - **Scoring:** The score is the total time that neither contact touches the floor, expressed in counts (1 count = 0.3 s; 100 counts = 30). Thus the maximum score is 100 (for 30 seconds), and the higher scores indicate better performance.
  - **Amendments taken in the test application:**

fig1 (a) Stand on the Balance Board

- The participant is instructed to stand at the edge of the platform Using the call leg in a squatting position

Fig1 (b) Seeking his balance on Balance Board

- Seeking its balance point of the pivot foot on the second board of the Balance Board.
- Once both feet on the Balance Board Beginning count (the chronometer.)
- The timer stops when the contacts touch the floor.

❖ **Observance:**

❖ All tests were at the end of the school year (2014-2015)
❖ All tests were videotaped and processing measured software Kinovea
❖ Calculate the Balance time
❖ Calculate the area of instep
❖ Calculate the length of the arm strength.
❖ The research teams' role in this study is limited to monitoring the experience and take the measures planned with the agreement of the participants.

Data Collection

Subjects:

Our experience is composed of 15 girl's school for the school year 2014-2015 who volunteered accepted to participate in order to observe changes caused by the period we have distribute the sample depending on the base of equation BMI at the end of the school year (2014-2015). The research teams role is limited to monitoring the expierence and take measures planned with the agreement of the participants

Data Analysis:

Table1 (a-b) shows the BMI, area of instep, the Balance time and the length of the arm strength.

Table1 (a) shows the results of group with the Obese Class I (Moderately obese)

BMI	area of instep	the Balance time	the length of the arm strength
30.3	33	10	11
31.8	32	16	15
32.8	31.5	14	16
31	32.58	13	12
33	32.3	16	15
31.7	33.8	13	12

Table1 (b) shows the results of group with the Normal (healthy weight)

BMI	area of instep	the Balance time	the length of the arm strength
23.99	26.16	24	26
24.7	24.04	25	25
24.55	23.04	26	24
24.87	23.01	26	24
25	24.8	27	23
24.64	24.5	26	24
24.71	23.22	28	22
24.66	24.03	27	23

Through the results table 1(a-b) the BMI shows two groups the group with the Obese Class I (Moderately obese) and the group with the Normal (healthy weight).from that our results are conformed with (M. Lee D. Vliet, 2001) BMI uses a mathematical formula that includes both your height and weight. BMI is calculated by taking your weight in kilograms divided by height in meters squared (BMI = kg/m2) where (Paresh Prabhakar Pamat M.B.BS, 2008) classified our results in his Table 3 were he provides details about the body mass index categories used by different studies While (Christopher D. Still, 2007) confirm that the BMI is very important vital sign which can determine obesity where (Howard C. Ansel, 2012) It advised to use this measure as easy and accessible to all.

From the above we conclude our discussion we rely on the opinion (Heather Hedrick Fink,Alan E. Mikesk, 2013) Body Mass

Index Classifications BMI (kg/m2) Classification ,18.5 Underweight 18.5–24.9 Normal weight 25.0–29.9 Overweight 30.0–34.9 Obesity class I 35.0–39.9 Obesity class II $ 40 Obesity class III .

For (Dennis Caine, LauraPurcell, 2015) in their study conclude they are strong relationship between BMI and sport injury where (Tony Fahey, Liam Delaney, Brenda Gannon, 2005)set the lack of the participated of sport they are becoming obese. In our case we explain in Puberty, which contributes to increase the hormonal glands were his factors play an important role to disclosure obesity.

3. Results and Discussion:

Table2 shows the Correlations of the Total Measuring values of the Variables in order to study for the group with the Obese Class I (Moderately obese)

Variables		ideal weight	Area instep	Score time balance	arm strength
ideal weight	Pearson Correlation	1	-.525	.794	.878*
	Sig. (2-tailed)		.285	.059	.021
	N	6	6	6	6
Area instep	Pearson Correlation	-.525	1	-.522	-.824*
	Sig. (2-tailed)	.285		.288	.044
	N	6	6	6	6
Score time balance	Pearson Correlation	.794	-.522	1	.814*
	Sig. (2-tailed)	.059	.288		.049
	N	6	6	6	6
arm strength	Pearson Correlation	.878*	-.824*	.814*	1
	Sig. (2-tailed)	.021	.044	.049	
	N	6	6	6	6

***. Correlation is significant at the 0.05 level (2-tailed).**

Through the results table 2 All comparisons are for the benefit of arm strength from that we conclude that :

- Correlations arm strength & Ideal weight is strong positive were More Heavy force Less Arm strength Balance Board.
- Correlations arm strength & Area instep is strong negative were More Heavy force Contribute to flatten instep
- Correlations arm strength & Score time balance is strong positive were Any imbalance in the distribution of body mass Requires Greater strength The body's own balance on Balance Board

Table3 shows the Correlations of the Total Measuring values of the Variables in order to study for the group with the Normal (healthy weight)

Variables		Ideal weight	Area instep	Score time balance	arm strength
Ideal weight	Pearson Correlation	1	-.673*	.741*	-.741*
	Sig. (2-tailed)		.047	.022	.022
	N	9	9	9	9
Area instep	Pearson Correlation	-.673*	1	-.679*	.679*
	Sig. (2-tailed)	.047		.044	.044
	N	9	9	9	9
Score time balance	Pearson Correlation	.741*	-.679*	1	-1.000**
	Sig. (2-tailed)	.022	.044		0.000
	N	9	9	9	9
arm strength	Pearson Correlation	-.741*	.679*	-1.000**	1
	Sig. (2-tailed)	.022	.044	0.000	
	N	9	9	9	9

***. Correlation is significant at the 0.05 level (2-tailed).**

****. Correlation is significant at the 0.01 level (2-tailed).**

Through the results table 3 All comparisons are for the benefit of arm strength from that we conclude that :

- Correlations arm strength & Ideal weight is strong negative were Equal force and resistance on Balance Board It requires to tuning balance of the body's own.
- Correlations arm strength & Area instep is strong posetive were less area instep Contribute to More Heavy force.
- Correlations arm strength & Score time balance is strong negative were the ideal distribution of body mass and breadth of the focal Base Contribute to the Increase of the body's balance on Balance Board This explains the relations connectivity Among of the other comparisons.

4. Discussion and Conclusion of our experience:

For the group with the Obese Class I (Moderately obese)

Our results are conformed to (Christopher Duggan (MD.),John B. Watkins,W. Allan Walker, 2008) **that the** practice of the Physical activity has a relation with energy intake and body fat in 8- and 13-year-old children in Sweden where (Thomas A. Wadden, Albert J. Stunkard, 2002)explain the phenomena that the energy balance equations are The balance between energy intake and energy expenditure which determines energy stores.from that we confirm Our set background that the hormonal factors play an important role to disclosure obesity which has a ratio of weight to height is known as the body mass index (BMI). People who are overweight might have too much body weight for their height. People who are obese almost always have a large amount of extra body fat in relation to their less balance (Barry Leonard, 2009) in our case we explain it in :

- Correlations arm strength &Ideal weight is strong positive were More Heavy force Less Arm strength Balance Board.
- Correlations arm strength & Area instep is strong negative were More Heavy force Contribute to flatten instep
- Correlations arm strength & Score time balance is strong positve were Any imbalance in the distribution of body mass Requires Greater strength The body's own balance on Balance Board

For the group with the Normal (healthy weight)

We explain the phenomenon in the limit of our study in The regulation of body weight composer that they can be considered as a homeostatic system characterised by a strict balance between caloric intake and energy expenditure (Giovanni Mantovani, 2007)for our sample we explain it in :

- Correlations arm strength &Ideal weight is strong negative were Equal force and resistance on Balance Board It requires to tuning balance of the body's own.
- Correlations arm strength & Area instep is strong posetive were less area instep Contribute to More Heavy force.
- Correlations arm strength & Score time balance is strong negative were the ideal distribution of body mass and breadth of the focal Base Contribute to the Increase of the body's balance on Balance Board This explains the relations connectivity Among of the other comparisons.

5. Our results and recommendation:

The nature of the balance of obese girls on Balance Board is advantage typical force were the force arm is longer than the resistance arm, force is favored. Conversely, when the resistance arm is longer than the force arm, the lever favors speed and ranginess (Gymnastics Guide, 1965).for (xioyan li, 2008)confirms in his study that weights to the body could be considered as a "mechanical constraint" that should affect the ability of an individual to control balance.

For the group with the Normal (healthy weight) the nature of the balance is Lever inter-support the fulcrum is positioned between the two forces The body can be rotated around its center without moving its center forward or backward in its relationship to its (Jack Nirenstein, 2010).

In addition, we conclude this modest study with clarification of (Anne Shumway-Cook, Marjorie H. Woollacott, 2007) the ability to control our body's position in space emerges from a complex interaction of musculoskeletal and ... gravity (the vestibular system), the support surface (somatosensory system), and the relationship of our body to objects in our environment (visual system). Postural stability, also referred to as balance, is the ability to control the center of mass in relationship to the base of support.

The ability to control our body's position on Balance Board require that the Body alignment refers to the relationship of one body part to another body part along a horizontal or vertical When the vertical line from the center of gravity does not fall through the base of support, the body loses balance. (Jackie Crisp, Catherine Taylor, 2012)

At the end of the experiment we recommend(1) Move away from the ideal weight contributes to obesity and Flat instep; (2) There is a strong relationship between Pivot base, balance and the ideal weight (3) Incompatibility of the Tall with ideal weight contributes to the weakness of the focal base (flatness instep), which contributes to the loss of balance.

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