

Impact of fat mass distribution body shapes on muscles strength and the joints pain.

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REVIEW ARTICLE

Year : 2016 | Volume : 1 | Issue : 2 | Page : 81-88

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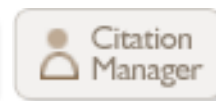
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Date of Submission 06-Aug-2016

Date of Acceptance 02-Nov-2016

Date of Web Publication 19-Dec-2016

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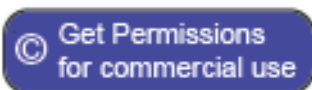
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Source of Support: None, **Conflict of Interest:** None

[SCOPUS] [CROSSREF] [PUBMED]

DOI: 10.4103/2468-838X.196084

**Abstract**

Our study focuses on fat mass distribution body shapes type as measured to determine their effect on skeletal lumbar extensors (upper and lower limbs) where our background confirms that every girl has a natural body shape, pear, or hourglass. It is good for her to know which type of body shape she is, so she can learn what exercises studies suggest that it is much better to challenge weight problems with exercise and dietary measures before surgery. For this purpose, our study was carried out with a total of thirty students, females listed in the Institute of Physical Education University of Mostaganem, aged between 20 and 23 years; their homogeneity was based on age, sex, and academic level based on the body mass index (BMI) into two groups (normal and overweight) and based on their body shape (pear shape, 10 rectangle shape, and 11 hourglass shape) as a protocol experimental to examine the impact of body shapes type on lumbar extensor strength. Based on our data analysis, we confirm that the pear and the rectangle shape have a lower strength lumbar extensors due to body weight distribution which increases the risks relating to the skeletal factor contributing to the weakness of skeletal muscles. However, the body shape explains the anomalies of fat mass and BMI risk observed in our sample in the lower and upper part of the body recorded by the values of Killy test. In the case of the pear and the rectangle shape back pain, which are consisting in excess of the body fat distribution percentage of muscle mass. Whereas this difference can affect the pelvic position.

Keywords: Body shapes, joints pain, muscles strength, students in physical education and sports

How to cite this article:

Mohammed Z, Ali B, Idris MM, Hamzaoui H, Messaliti L. Impact of fat mass distribution body shapes on muscle strength and joints pain. BLDE Univ J Health Sci 2016;1:81-8

How to cite this URL:

Mohammed Z, Ali B, Idris MM, Hamzaoui H, Messaliti L. Impact of fat mass distribution body shapes on muscle strength and joints pain. BLDE Univ J Health Sci [serial online] 2016 [cited 2018 Jul 30];1:81-8. Available from: <http://www.blde.univ-mst.dz/2016/1/2/81/196084>

Individual evaluation standard and comprehensive evaluation system are specially established to further build a system so as to perfect the body shape model.^[1] From the proof, where Lluch S, Lluch E. confirmed that ev

type - Rectangle, Apple, Pear, or Hourglass.^[2] Our interest in this modest study examines the impact of the ac favors women in the lower body, including hips.^[3] The excess of the body fat in women reduces muscle bone tissues.^[4] Therefore, Willett confirms the use of percent body fat as the criteria for assessing body m inappropriate^[5] whereas Ditmier confirms that the amount of body fat (or adiposity) includes concern for b throughout the body and the size of the adipose tissue deposits,^[6] which result in the joint stiffness and p mobility and stability due to the body composition excessive as restriction of motion simply to move and s according to Bradley and Brzycki.^[7]

From the proof that body shape is a critical task of multicellular morphogenesis, "Despite its importance, understanding about how body shape is developed and maintained."^[8]

The present study aimed to explore, on the one hand, optimal shape predictor of physical performar investigating the association between body shape and physical performance,^[9] and on the other hand, base body shape index [ABSI]) to predict the lumbar extensor risks.^[10] However, the similar studies agree that bo been used for years to determine body composition, including healthy,^[11] as the weight, which is one of the n shape index, that can reflect the degree of human body symmetry and shape characteristics and too much v joint problems.^[12]

Based on the confirmation that the skeletal problems in women return to the body shape,^[13] the muscle t related to the index body composition.^[14]

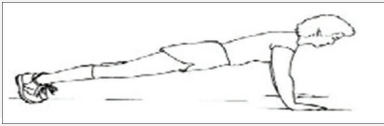
Our intervention in this study is based on the fat mass distribution body shape (body form) as a shape of t appropriate to the way in which bodies may be kept healthy and free from disease.^[16] Where the body image properties (size, shape, and Weight).^[17] From that, our hypothesis is based on body fat distribution within the fat shock^{[18],[19],[20],[21]} where our aims are to determine the variables influencing muscle strength and appearance (body form) in sports women.

Methods

Design of the study

This study was a descriptive design study inspired by the study "The Relationship between Cross Sectional / Muscles in Patients with Chronic Low Back Pain," [Figure 1]^[22] which recorded the assessment of 7 men and shapes type as morphological parameters tests and strengthening lumbar extensors (upper and lower) as phys tests; in our case, we used thirty women as sample and skeletal muscle tone field test where Müller (1840) des tone is prolonged and tireless contraction of muscles ensures maintenance of a certain posture of the boc Selkowitz *et al.* confirm that 70%-95% of adults will suffer from low back pain at some time during their lifetim participants were tested by field test in the same conditions by a specialized team.

Figure 1: *The plank position on stable surface*^[32]



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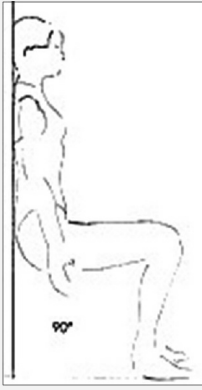


Figure 2: *The test chair Killy*^[34]

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Procedure

The study was approved by the Laboratory OPAPS Institute of Physical Education and Sports Department, Şanlıurfa University, Mostaganem. Thirty female students from physical education and sports with mean age group of 21.83 ± 1.56 , mean height of 156.23 ± 7.22 cm, mean weight of 58.10 ± 4.45 kg, mean BMI of 23.91 ± 2.58 kg/m², ABSI index of 0.03 ± 0.00 were selected according to the following criteria.

Inclusion criteria

All participants are female student's registered in the Institute of Physical Education and Sports University Mostaganem in 2015 in the same growth characteristics: age, physical performance, and quality of life [Figure 3].^[25]

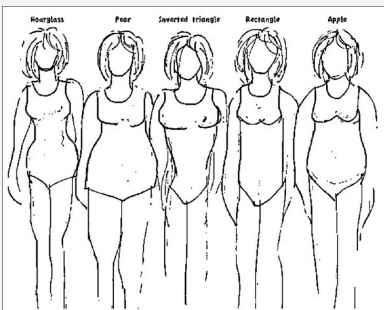


Figure 3: *Body shapes types*^[36]

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Exclusion criteria

All participants who are volunteers were evaluated based on field tests within the same conditions and procedures. The study was conducted on a save and baseline measurements where our background confirms that the reduction of lumbar flexion-rotation starts at around 50 years of age.^[26]

Morphological parameters

A body shape index (ABSI) calculator

Body shape index (BSI) is a metric for assessing the health implications of a given human body height, mass (kg), and waist circumference (WC). Whereas similar studies confirm that the BSI a better indicator of the health risks of excess weight than than the BMI. The formula for calculating is:^[27]

$$ABSI \equiv \frac{WC}{BMI^{2/3} \text{ height}^{1/2}}$$

Where the body shape index (ABSI) is based on WC adjusted for height and weight, [28],[29] as new method : effects of body fat.

Physiological stress parameters

Test of Biering-Sorensen: Isometric for evaluating endurance of trunk extensor

In the prone position, the legs are fixed subject to the anterior superior iliac spines by straps at the ankles and support. The arms are crossed on his chest and the hands rest on his shoulders. The test measures the hold t female above a virtual horizontal line extending. [30],[31]

Killy test for evaluating Isometric knee extensor endurance

The subject pressed his back against the wall. Hips, knees, and ankles are flexed to 90°. The arms are crossed on the shoulders. The test measures the length of maintained sitting without a chair leaning control wall. [30],[33]

Body type calculator

This body type calculator tells you which are your body shape and waist to hip ratio using the bust, waist, a discover more on this subject below the form.

The bust measurement is the circumference of the bust at the fullest part of the breasts while keeping the t tight.

The waist measurement is the circumference of the narrowest point of the torso, which is often just above the l

The hip measurement is the circumference of the largest part of the hips, with the most prominent curve. [35]

Once you know your dimensions, you can quickly use the body type calculator and find out whether you have or an hourglass type. This can help you know how your body shape or show you which is the health risk dimensions. [37] We agreed these sources based on indications that the shape calculator online at metal calculator will help you. [38]

Statistical analysis

Statistical analysis was conducted using the SPSS software version 20.0 (IBM Corporation, Armonk, NY, USA). In least Significant Difference (LSD), and Pearson correlations were used for comparing the variables chosen : considered statistically significant.

Results

Baseline characteristics of the participants are presented in [Table 1]. According Levene's test for equality of variances, the data are not homogeneous in all variables, except in BMI risk. Where those results explain that overweight increase the risk of osteoarthritis conducted to osteoarthritis in the near future.^[39]

- Based on the calculi of ANOVA body shape (rectangle, hourglass, pear), the age is not significant at level $P < 0.05$ that the differences observed in this study did not report the age growth characteristics whereas the differences in body shape study are significant at level, $P < 0.05$
- Based on BMI (normal weight and overweight), our results confirm that the age is not significant in the differences between BMI risk
- Based on ANOVA and LSD present in [Table 2], we confirm that the body shape type is able to determine the differences in body composition at level, $P < 0.05$, in the majority of comparisons.

These differences return to the body fat distribution is confirmed by the calculi of independent t -test, which is in the benefit of normal body gain in all the comparisons.

- Based on its differences, we agreed with Haviland *et al.* that woman bodies (pear-rectangle) produce more risk of osteoarthritis than hourglass-shaped.^[40] Whereas Kasper *et al.* mention that this could occur through peripheral fat distribution, androgens to estrogens or through leptin production in adipose tissue^[41]
- Through [Table 3], we agree that all the correlations calculated are strong significant at the $P=0.01$ level. The correlation between BMI and Killy test and endurance of trunk are strongly negative whereas ABSI is strongly positive relative to BMI based on the correlation BMI risk which is strong negative.

From the proof, as our case study, we agree that hourglass is the best physical profile with less risk relative to rectangle. Whereas the pear is fewer physical profile that risks more relative due to level of body fat distribution.

In conclusion, based on class BMI, our results confirm that weight gain is a factor contributing to the weakness of the trunk. However, the body shape explains the anomalies of the distribution of fat mass and BMI risk observed in our study. The upper part of the body recorded by the values Killy test and endurance of trunk. Whereas pear pain consists of lower back pain distributed due to percentage of muscle mass. This plays an important role in supporting the lumbar spine and

Discussion

The most important finding of our study concerns body types shape appearance (body form), which is able to determine the risk of overweight on lumbar extensor strength due to level of the distribution and the nature of the mass body weight. The changes in body weight where this relationship is consistent with the level relative risks of BMI and ABSI. However, we need confirmation that:

- The ideal female body - curvy or hourglass-shaped^[43]
- Achieving an hourglass or V shape is not possible when belly fat is elevated^[44]
- The ideal shape changed from the hourglass curve to a more^[45]
- Hourglass-shaped women have less cylindrical and androgen than the other shapes^[46]
- The impacts strengthening lumbar extensors and appearance body forms are required to strengthen bones can be a stress on bones.^[47]

From that our findings, we come to confirm the results of the similar studies that BMI reflecting mostly the relationship to metabolic variables whereas the ABSI depicts fat distribution and relative risk healthy according to BMI relative risk.

Based on the proof, we agreed the confirmation that types of body shape determine the risk in skeletal strengthening lumbar extensors and appearance body forms.^{[48],[49]} However, these risks are due to change in values which negatively affects the body's joints in middle age and can greatly influence the activity and endurance results, we confirm that the ABSI is the important measure to determine the health risk.^[51] For the BMI relative risk, an individual with a higher BMI risk a higher level of adiposity and lower muscle lipoprotein lipase activity.^[52] Pear type shape, followed by rectangular the case of the test practiced in the current study. From the above, we confirm that the individual with a pear body type is broader in the lower half of the body.^[53] While rectangular body type is basically the same circumference based on the description of Keiser and Garner.,^[54] Cook *et al.* confirm that waist.^[55] In terms of storage grease, we agreed that the circumference must be adjusted to the BMI class and fat distribution.^[56] However, the ABSI and BMI calculate in the current study, as a relative health risk, confirmed that they are challenges training process for any female due to the estrogen stimulates lipoprotein lipase activity, causing fat accumulation in hips, buttocks, abdominal and breasts.^[57]

Conclusion

Our study evaluated the impact of body type shapes body forms on risk strengthening lumbar extensors and physical education and sports based on two surrogate measures: morphological parameters (BMI and ABSI) and functional parameters (isometric endurance of trunk extensor and isometric knee extensor endurance) to determine the relationship between developed on skeletal muscle strength due to appearance body forms.

On the plan *morphologique*

We confirm that the body type is categorized in human body in 12 super-specific types based on the quote of Keiser and Garner that the most are listed in five basic body shapes^{[58],[59]} as the hourglass, the inverted triangle, the rectangular, the pear, and the apple. However, our sample is categorized as hourglass, pear, and rectangle.^[60] Our results confirm the impact of body type as a factor for chronic diseases,^[61] which return to the bad distribution of body fat where our background comes in tops of the list, followed by apple shape and rectangular shape. Based on that, we confirm that people

below the waist (on hips, thighs, and buttocks) have a pear shape,^[62] the rectangle body shape has shoulders of the same width and a waistline that does not vary more than a few inches,^[63] while the rectangles need waist definition. We agreed the recommendation that our girls' students must develop their type body shape based on the rule with a smaller bust and hips.^[64] Cabot and Cooper confirm that the body shaping diet is a revolutionary approach to weight loss that addresses the needs of your particular body type.^[65]

On the plan physiological stress

Our findings support our hypothesis that the overweight associated to the changes in body composition affects performance. However, our results confirm that the hourglass is most adapted to effort in the opposite of 1 where the level of BMI required maximum endurance of trunk torque.^{[66],[67]}

On the plan risk relative to body mass index

Our findings support our hypothesis where the overweight associated with the changes in body composition affects performance. However, our results line with the confirmation of that being overweight can also have an impact on performance.

In general, our findings support that body weight does not convey how much body fat you have or where it is located. While the body weight alone cannot be used to estimate health risk,^[71] Kim and Kim confirm that body type is related to body shape to body size, where the form of muscle and bone is more prominent with the less body fat.^[72]

Acknowledgment

We would like to thank all the students who volunteered for the study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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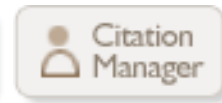
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Figures

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Impact of fat mass distribution body shapes on muscles strength and the joints pain, not the fact that Il excites indoor water Park.

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