

## Using CLO 3D program to evaluate the basic flat pattern for girls in adolescence

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### **Introduction:**

The process of preparing pattern is one of the most accurate functions on which the ready-made garment industry depends on. It depends on the success of the design and production as a whole, and the importance of patterns in the industry increases because it determines the type and size of the product. It also determines the method of sequencing production processes, which leads to determining the cost of the product before the start of production as a whole, and therefore the proper pattern is necessary for all the garment industry, high demand or for large production or the educational field.

The flat basic pattern is the tool on which the quality of the final clothing product depends on, which specifies the appropriate setting and provides physical and psychological rest. where the designers of clothing use it as the basis for the work, the design pattern shows the design lines and folds, the signs of the destruction, the number of layers of cloth, at where and which direction to cut with the firmness of the adjustment of the pattern.

Since the middle of the last century the whole world began a new era called the era of information technology or the era of the revolution of knowledge, and human awareness of the elements of this era and its association with it became a certain necessity so that we can benefit from the forms of technological progress that occur every day.

Recently, computer technology and information on new ways of producing clothing have been revealed, so three-dimensional programs (3D) have emerged. These are new and varied programs that allow designers and producers to design and prepare clothing patterns and simulate them on the human body by creating hypothetical models through which to see design ideas in the form of the body and determine problems, then modify and assess models before agreeing to the final design and quantitative production, then manufacture and delivery to the consumer market. CLO 3D Virtual Fashion is one of the most powerful 3D fashion design programs currently through which the pattern can be drawn in the required sizes and seen on one of the virtual mannequin attached to the program (which can be changed in sizes according to desire) With the necessary modifications to the pattern to reach the appropriate adjustment.

Early adolescence (12-14 years) is one of the important stages of life between childhood and adulthood, this stage is distinguished with the urgent need for adapting to the different physical, emotional and social changes that occur during that period.

**Research Problem: -**

Review of previous studies shows that patterns for girls at this stage are a real problem as there is no basic pattern that paying attention to the physiological changes that girls are going through at this stage, which appear clearly on the body from the outside, the method used in building a pattern of the corsage for them depends on the back length and is completed with disregard for the length of the front (as in the construction of children's patterns). Aldrich pattern, which previous studies have agreed to prefer it from others, in the construction of patterns from the age of 14 years, depends on that the length of the back is equal to the length of the front and this conflicts with the physical characteristics of the body of girls in the early adolescence.

Hence the idea of using 3D simulation programs in the evaluation of Aldrich pattern for girls in the early adolescence (12-14 years) by knowing how well it is fixed and applied to the Mannequin attached to the program and trying to make some adjustments to it to reach the optimum degree of control.

**Search objectives:**

The current research aims to:

1. Shed light on the triangular simulation programs and how to use them in adjusting patterns.
2. The simulation of the flat basic pattern "Aldrich method " for girls from the age of 12-14 years to know the amount of control and applicability to the body at this age stage.
3. Trying to reach suitable solutions to modify the pattern at this age stage in order to achieve the optimum degree of adjustment.

**The importance of the research:**

The importance of the research lies in:

1. Benefit from the results of this study in teaching at colleges and specialized schools as well as in the garment industry.
2. Taking advantage of modern technology in modifying and adjusting flat patterns to reach a well-adjusted product.

**Research assignments:**

1. There are statistically significant differences between the basic pattern and the modified pattern in the Substitution values of the study sizes.
2. There are statistically significant differences between the basic pattern and the modified pattern in the balance values of the sizes in question.
3. There are statistically significant differences between the basic pattern and the modified pattern in the values of the amount of rest at both the chest line and the midline of the study sizes.
4. There are statistically significant differences the basic pattern and the modified pattern in the values of the lines (longitudinal, transverse, curved and tilted) for the sizes in question.
5. There are statistically significant differences between the basic pattern and the modified pattern in the values of the basis of the overall adjustment of the sizes in question.

**Research methodology:**

The research follows the semi-experimental approach of its hundred design to achieve the objectives of research and verification of its own idea.

**Induction limits:**

The current research is limited to the study of:

1. The pattern of the corsage in the manner of Aldrich reference (17) p (347-355).
2. Girls in early adolescence aged 12-13-14 years.

**Search procedures:**

The program CLO 3D contains two screens, one for the flat drawing of the pattern (2d) and the other 3d to see the pattern on the mannequin body to witness the extent of adjusting the pattern on the mannequin after applying the simulation for the sizes, a number of points that were found in **the three sizes that require reset were discussed:**

- The amount of rest added pattern as the expansion of the pattern in a large way from the body of the Mannequin was observed.
- The chest penny of the pattern does not apply to the body of the Mannequin.
- The side line leans forward.
- The midfielder's mismatch in the front of the Mannequin the corsage.

Based on the above points, some modifications have been made to the pattern in an attempt to reach the optimum degree of adjustment, which is as follows:

- Reduce the amount of rest added to the pattern, 3 cm instead of 5 cm and then build the basics of the patron according to the original reference.
- Increase to the width of the chest penny by (0.5 cm) to size 12, (0.7 cm) to size 13, (1 cm) to size 14.
- Lift the shoulder line forward 1 cm for all sizes.
- Adjust the width of the medium penny to the same amount in both front and back (2.5 cm) to size 12, 13 and (3 cm) to size 14.
- ❖ The modifications are shown in the following figure where the black line represents the basic pattern and the red line the modified pattern .

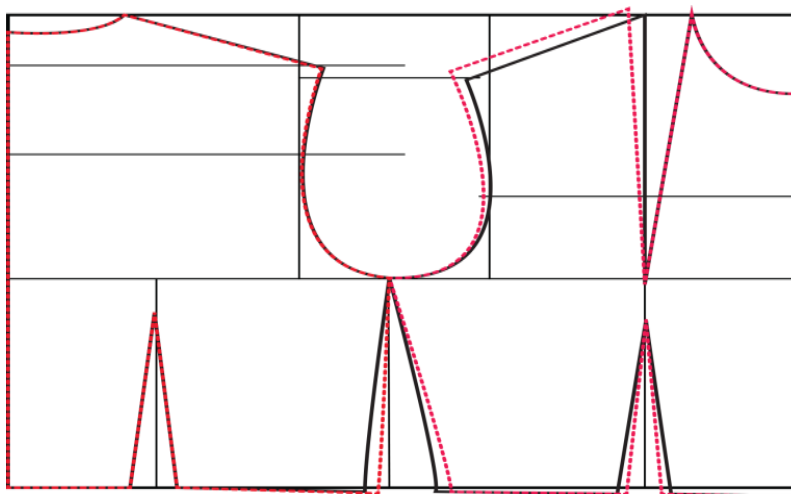


Figure no (1) shows the modifications made to the pattern

## Results and its discussion:

To verify the validity of the research assumptions, the calculations and standard deviations were calculated to evaluate the arbitrators for the exacting of both the basic and the modified pattern , as the Mann-Whitney test was conducted to compare the two methods for each of the measures implemented.

1. There are statistically significant differences at a moral level (0.01) between the basic pattern and the modified pattern in favor of the modified pattern in the three sizes in question in terms of the values of both (obstruction, chest rest, transverse lines, pleura, hardness of the armpit).
2. There are statistically significant differences in the values of the amount of rest at the midline between the basic pattern and the rate, in favor of the modified pattern at the moral level (0.05) for size 12 and at the moral level (0.01) for size 13 and 14.
3. There are statistically significant differences at a moral level (0.05) between the basic pattern and the rate in favor of the modified pattern in the three sizes in question in terms of the values of the balance property.
4. The lack of substance between the basic and modified pattern in terms of values (longitudinal line - shoulder - hardness of the vertebral neck - hardness of the back neck) this means that the modifications made to the pattern did not adversely affect the control of these parts.

## Recommendations:

1. Teaching pattern courses in colleges of home economics and corresponding colleges using 3D programs to keep up with the development.
2. Directing research towards measuring the adjustment of other types of patterns using 3D programs.

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