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Entitled
**Using design elements to meet Back Irregularities
fashion challenge via biofinished fabrics**

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Contents

	Page
Summary	IX
1. Introduction	1
1.1. The Anatomy of the Spine.	2
1.1.1. Types of Spine Curvature Disorders.	3
1.1.2. The causes of the spine curvature disorders.	5
1.1.2.1. The causes of Lordosis	5
1.1.2.2. The causes of Kyphosis	6
1.1.2.3. The causes of Scoliosis	6
1.1.3. The symptoms of the spine curvature disorders.	6
1.1.3.1. Symptoms of lordosis	6
1.1.3.2. Symptoms of kyphosis	7
1.1.3.3. Symptoms of Scoliosis	7
1.2. The back irregularity fashion challenge	7
1.2.1. Bodily Changes resulting from back irregularities	9
1.3. Clothing Problems	10
1.3.1. Clothing problems that occur by lordosis	10
1.3.1.1. Clothing alterations steps for lordosis	11
1.3.1.2. Clothing designs for lordosis.	12
1.3.2. Clothing problems that occur by kyphosis	12
1.3.2.1. Clothing alterations steps for kyphosis	13
1.3.2.2. Clothing designs for kyphosis	14

1.3.3.	Clothing problems that occur by scoliosis	14
1.3.3.1.	Clothing alterations for scoliosis	16
1.3.3.2.	Clothing designs for scoliosis	16
1.4.	Solving clothing problems	18
1.4.1.	Solving Problems that occur by deformity of the spine with patterns.	18
1.4.1.1.	Sloping Shoulders.	18
1.4.1.2.	One Shoulder Lower Than the Other.	20
1.4.1.3.	Curved Back.	21
1.4.1.4.	Swayback.	23
1.4.1.5.	Dowager Hump.	24
1.4.2.	Guidelines to disguise clothing problems.	25
1.4.2.1.	Guideline to disguise a gaping collar or neckline.	25
1.4.2.2.	Guideline to disguise a protruding abdomen.	25
1.4.2.3.	Guideline to look taller and straighter	26
1.5.	Fashion Design:	26
1.5.1.	Design Elements for people who have back irregularity	27
1.5.1.1.	Line	27
1.5.1.2.	Necklines & Collars	27
1.5.1.3.	Sleeves	29
1.5.1.4.	Color	29
1.5.1.5.	Accessories	30

1.5.1.6.	Texture	33
1.5.1.6.1.	Effect of texture on physical proportion	34
1.6.	Fibers:	35
1.6.1.	Cellulosic Fibers	35
1.6.2.	Cotton Fiber	36
1.6.2.1.	Chemical Composition	37
1.6.2.2.	Microscopic Appearance	37
1.6.2.3.	Physical properties of Cotton	38
1.6.2.4.	Chemical Properties of Cotton	38
1.6.2.5.	Mechanical properties of Cotton	39
1.6.2.6.	End Uses of Cotton	39
1.6.3.	Flax:	39
1.6.3.1.	Chemical Composition	40
1.6.3.2.	Microscopic Appearance	40
1.6.3.3.	Chemical Properties of flax	41
1.6.3.4.	Physical properties of flax	42
1.6.3.5.	Mechanical properties of flax	42
1.6.3.6.	End Uses of Linen fabric	43
1.7.	Fabric Preparation	43
1.7.1.	Cleaning	43
1.7.2.	Bleaching	43
1.8.	Enzymes	43
1.8.1.	The Properties of Enzymes used in textile processing industry	44

1.8.2.	Cellulase enzymes	45
1.8.2.1.	Action of Cellulase	46
1.9.	Dyeing	48
1.9.1.	Reactive dyes	48
1.9.2.	Tie and dye.	49
2.	Aim of the Work.	50
3.	Experimental Work.	52
3.1.	Materials	52
3.1.1.	Fabrics	52
3.1.2.	Enzymes, chemicals.	52
3.1.3.	Dyeing.	52
3.2.	Methods.	54
3.2.1.	Fabric Pretreatment and Biopolishing.	54
3.2.1.1.	Half Bleaching.	54
3.2.1.2.	Biopolishing.	54
3.2.2.	Reactive Dyeing	54
3.2.2.1.	Tie and Dye Technique	55
3.3.	Test Methods:	55
3.3.1.	The fabrics warp and weft sett	55
3.3.2.	The fabric weight	55
3.3.3.	Fabric stiffness.	55
3.3.4.	Crease recovery angle.	55
3.3.5.	The Resistance of Tearing.	56
3.3.6.	The Tensile strength and Elongation.	56

3.3.7. Evaluation of wettability.	56
3.3.8. Color strength.	56
3.3.9. Fastness properties.	57
3.3.9.1. Light fastness.	57
3.3.9.2. Wash fastness.	57
3.3.9.3. Perspiration fastness.	57
3.3.10. Pattern Alterations.	57
3.3.10.1. Alteration in pattern for Dowager hump problem.	57
3.3.10.2. Alteration in pattern for Sway back problem.	58
3.3.10.3. Alteration in pattern for sloping shoulders problem.	59
3.3.10.4. Alteration in pattern for uneven shoulders.	60
3.3.10.5. Alteration in pattern for large buttocks or abdomen.	61
3.4. Pattern and Layout	63
4. Results and Discussion.	81
4.1. Physico-mechanical properties of Biopolishing fabrics.	81
4.1.1. Warp and weft sett.	81
4.1.2. Fabrics Weight.	82
4.1.3. Fabric Stiffness.	83
4.1.4. Fabric Wettability.	84
4.1.5. Tear Resistance.	85
4.1.6. Tensile Strength and Elongation.	86

4.1.7. Crease Recovery Angle.	88
4.2. Reactive dyeing of biopolishing fabrics.	89
4.2.1. Dying with Remazol® Yellow176 3RS	90
4.2.2. Dying with Remazol® Red 239 3BS	90
4.2.3. Dying with Remazol® Blue 220 BB.	91
4.3. Fastness Properties.	91
5. Designs and products.	93
5.1. Fashion Tips.	93
5.2. The techniques used.	95
5.2.1. Tie and dye technique.	95
5.2.2. Stencil Printing technique.	96
5.2.3. Embroidery stitches technique.	96
5.2.4. Patch work.	96
- Designs and products	99
6. References	118
- Arabic Summary	128

List of Figures

No. Figures	Name Figure	Page
1	The Human Spine	3
2	Abnormal spinal curvature	4
3	Types of spine curvature disorders	4
4	Clothing Problems resulting from back irregularities	8
5	Lordosis causes close-fitting to wrinkle around waistline	11
6	The kyphotic figure	13
7	The Scoliotic spine	15
8	A Milwaukee brace may correct scoliosis in young girls	15
9	Sloping shoulders cause folds at underarms	18
10	Solving the problem caused by sloping shoulders with pattern	19
11	One shoulder lower than the other	20
12	Solving the problem caused by One Shoulder Lower than the other with pattern	21
13	Curved Back	21
14	Solving the problem caused by curved back with Pattern.	22

15	Swayback	23
16	Solving the problem caused by swayback with pattern.	24
17	Dowager hump	24
18	Examples of Neckline and Collars.	28
19	The basic shapes for scarves.	31
20	Examples of scarves.	32
21	Diagram of a cellulose molecule	35
22	Cross Section and Longitudinal view	37
23	Flax fiber. (a) Longitudinal view, (b) Cross Section.	41
24	The mechanism of cellulase action on cellulose	47
25	Reactive dyeing procedure	55
26	Alteration in pattern for Dowager hump problem.	58
27	Alteration in pattern for Sway back problem	59
28	Alteration in pattern for Sloping shoulders problem.	60
29	Alteration in pattern for Uneven shoulders problem.	61
30	Alteration in pattern for Large Buttocks or Abdomen problem	62
31	Effect of biofinishing on warp and weft sett direction of cotton and linen fabrics.	82

32	Effect of biopolishing on weight per meter square of cotton and Linen fabrics.	83
33	Effect of biopolishing on cotton and linen fabrics stiffness.	84
34	Effect of Biopolishing on cotton and linen fabrics wettability.	85
35	Effect of Biopolishing of tear resistance on cotton and linen Fabrics	86
36	Effect of biopolishing on tensile strength in warp and weft of cotton and linen fabrics	87
37	Effect of biopolishing on elongation of cotton and linen fabrics	88
38	Effect of biopolishing on crease recovery of cotton and linen fabrics.	89
39	Effect of biopolishing on color strength (K/S) of fabrics using Remazol [®] Yellow 3RS.	90
40	Effect of biopolishing on color strength (K/S) of fabrics using Remazol [®] Red 3BS	90
41	Effect of biopolishing on color strength (K/S) of fabrics using Remazol [®] Blue BB.	91

List of Tables

No.	Name of Table	Page
1	The Chemical composition of cotton fiber.	37
2	The Chemical composition of flax fiber	40
3	Fabrics Specification	52
4	Reactive dyes structure.	53
5	Fastness properties of gabardine, poplin, voil and linen fabrics dyed with different reactive dyes.	92

List the pattern Of Designs

No.	Page
1- Pattern of design (1)	63
2- Pattern of design (2)	65
3- Pattern of design (3)	67
4- Pattern of design (4)	69
5- Pattern of design (5)	71
6- Pattern of design (6)	73
7- Pattern of design (7)	75
8- Pattern of design (8)	77
9- Pattern of design (9)	79
10- Pattern of design (10)	80

List of Designs and Products

No.		Page
1	Design (1)	98
2	Product (1)	99
3	Design (2)	100
4	Product (2)	101
5	Design (3)	102
6	Product (3)	103
7	Design (4)	104
8	Product (4)	105
9	Design (5)	106
10	Product (5)	107
11	Design (6)	108
12	Product (6)	109
13	Design (7)	110
14	Product (7)	111
15	Design (8)	112
16	Product (8)	113
17	Product (9)	114
18	Design (9)	115
19	Product (10)	116
20	Design (10)	117

Summary

Back irregularity is one of the many conditions that can affect body shape because of the effects of fractures in the spine. Finding both comfortable and stylish clothes can be a challenge because of the height loss, curvature of the spine and widening of the girth that sometimes accompanies spinal fractures. The present thesis aims to minimize the appearance of the physical changes that may be caused by back deformity in order to create the appearance of a straight line from head to toe and direct the eye away from any deformity. Design Elements and Accessories are two important fashion components that can use to tackle these problem.

To achieve the goal, the following activities were done:

1. Study how back irregularities caused by spine curvature disorders.
2. Explain the impact of spinal fractures on body image.
3. Analysis the clothing problems and suggests clothing ideas for individuals with exaggerated irregularities of the back.
4. Find solutions for these problems that occur by deformity of the spine with patterns.
5. Try to apply the elements of fashion design to meet the fashion challenge caused by back irregularities for suggest fashion tips.

6. Chose natural fabrics such as cotton and linen fabrics were selected because of their properties to suit who are suffer from spinal deformity.
7. Doing bio-finishing treatment with cellulase enzyme on industrial scale in order to help textile manufacturers to boost the quality and improve softness, drape, dyeing.
8. Physico-mechanical properties of the biofinished fabric (warp and weft sett- weight – stiffness - crease recovery angle – tear resistance – tensile strength and elongation – wettability) were evaluated in comparison with the untreated fabrics (blanks).
 - Increase in fabric set in both direction and weight due to the aqueous enzymatic treatment of fabrics, hydrophobicity, swelling and absorption as well as shrinkage increased.
 - The wettability of fabrics improved after biopolishing.
 - The stiffness decreased in all types of fabrics leading to an increasing in the smoothness and softness.
 - Enhanced in the crease recovery angle but decreased the tensile strength and, tear resistance in all treated fabrics.
9. Study the effect of biopolishing on reactive dye using different colors was accomplished on lab scale. The color strength and fastness properties of dyes after cellulase treatment improved.