



The Opportunity Suit INSTRUCTIONS

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TABLE OF CONTENTS

WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT



TABLE OF CONTENTS

Introduction ... 2

Purpose of the Opportunity Competitive Swimsuit

Testing... 3

Quantified improvement over existing swimsuits

Endorsements... 4

Expert consultants in the Opportunity's development

Design Overview ... 5

General overview of design and materials

Official Pattern ... 6

Scaled down fabric pattern for the Opportunity Competitive Swimsuit

Assembly Instructions... 7

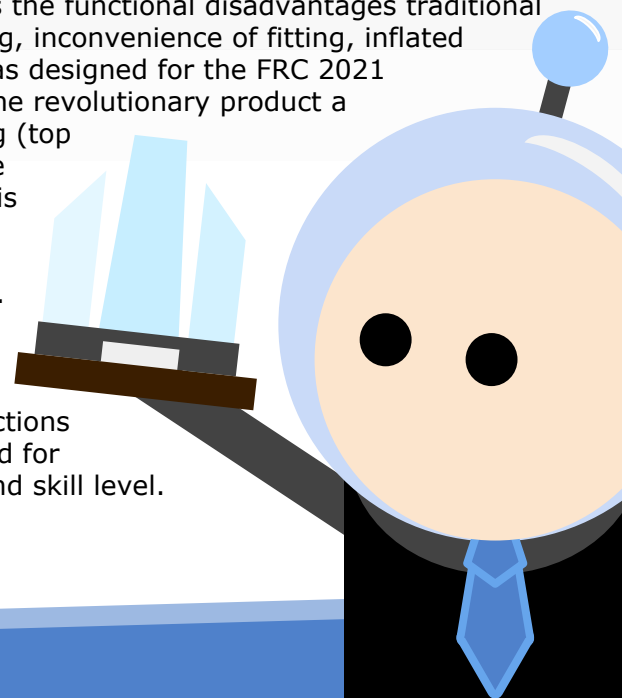
Detailed assembly instructions

Contact Us... 8

Get help with assembly or ask the Opportunity Team questions

What is the Opportunity Competitive Swimsuit?

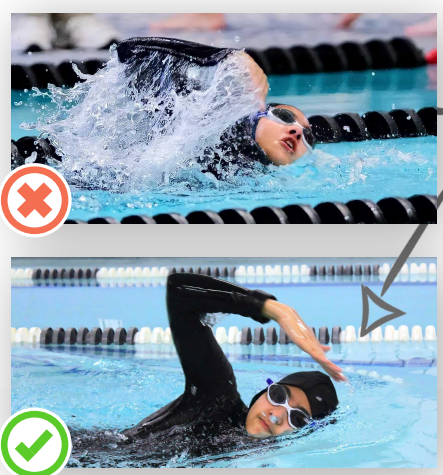
The Opportunity Competitive Swimsuit, developed by FRC #3928 Team Neutrino of Story County Iowa, is the world's first competitive Hijabi swimsuit which eliminates the functional disadvantages traditional modest swimsuits face (e.g. drag, inconvenience of fitting, inflated price point). The Opportunity was designed for the FRC 2021 Innovation Challenge, earning the revolutionary product a prestigious Semi-Finalist ranking (top 116 teams worldwide). Now, the Opportunity development team is making our original, free-to-use design accessible for any and all modest swimmers worldwide. This packet will discuss our design process, demonstrate improvement through testing results, and give detailed instructions on how the suit can be replicated for modest swimmers of any size and skill level.





INTRODUCTION

WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT



How is The Opportunity different than Burkinis?

The Opportunity Competitive Swimsuit gives modest swimmers a crucial advantage over traditional Burkinis in several key ways— unlike commercially available Hijabi swimwear, The Opportunity meets the 4 criteria that we've identified through our extensive market research for both competitive performance and high-end user experience (seen in the chart below). This is a useful chart to reference when selecting a modest swimsuit, to compare the Opportunity with an existing suit to see what suits you.

SOLUTIONS	QUALITY MATERIAL	COMPETITIVE FIT	SECURE ATTACHMENT	AFFORDABLE COST
The Opportunity	✓	✓	✓	✓
Existing Hijabi Suit	✗	✗	✗	✗

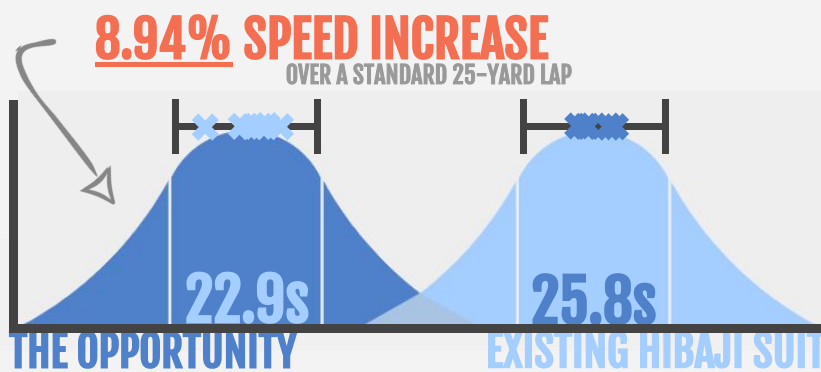


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TESTING WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT

THE WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT



Quantified Improvement + User Experience = **Opportunity**

These human tests were conducted between The Opportunity and a sample existing suit over 12 trials (represented on the curves to the left). This is an improvement of over 2.88 seconds in a standard 25-yard lap. The provided bell curves show the distribution of collected data, and predict the data that would likely be observed with further testing.

Revolutionizing Existing Designs Through Reduced Drag

The Opportunity improves upon the leading existing Hijabi recreational swimsuit in a profound way. From its original streamlined pattern to unique silicone edging, 3928's Opportunity Competitive Swimsuit improves user experience dramatically. The suit also utilizes a modesty cloak (towel or other garment) for use outside of the water, eliminating the traditional skirt-like design elements which slow existing suits.



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#3



EXPERT ENDORSEMENTS

WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT



SHIREEN AHMED
Award Winning Advocate/Journalist

MANAL ROSTOM
Nike Victory Ambassador

YUSRA METWALLY
Advocate, 'Swim Sisters' Founder

DR. RACHEL EIKE
Wearable Technology, Sustainability

DR. ELLEN MCKINNEY
Functional Design, Manufacturing

DR. RIMLA AKHTAR
Activist, 'Muslim Women's Sport Foundation'

QUAH TING WEN
Esteemed Competitive Swimmer, Olympian

BRIAN HEMESATH
Broadway/Network Costume Designer

SEKAR RAJU
Associate Professor, Strategic Marketing

RANEEN MALIK
Athlete, 'Swim Sisters' Member

ANDY ECKERT
Business and Marketing Teacher

DR RICK SHARP
Renowned Olympic Swimwear Designer

SALMAN MAQSOOD
Business Strategy, President of Saltech Systems

JILL BURT
Ames City Aquatic Facilities Manager

AYA MEDANY
Egyptian pentathlete/Olympian, Advocate

DR. TJ PASKACH
BioEnergy Developer, Experienced Patent Advisor

DR. DANA REWOLDT
Intellectual Property Director, ISU Patent Office

ROWAIDA ABDELAZIZ
National Reporter, Anti-Islamophobia Advocate

Key Experts 18+ Worldwide

Over the Opportunity's 6-month development process, the team consulted 18+ industry experts around the globe, including apparel and design experts, advocates, and Olympic swimmers. The Opportunity development team is incredibly proud to have consulted some of the biggest names in Muslim advocacy, functional design, and Olympic swimming to refine the Opportunity Competitive Swimsuit.

"I'm so excited by your project and it's something I've been following in terms of struggles of covered athletes."

– Dr. Rimla Akhtar, successful UK advocate



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#4



DESIGN OVERVIEW

WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT

Design Overview

Our original design is easily replicable, so any swimmers can take advantage of it's functionality. This page will discuss an overview of its design, followed by the official pattern and detailed assembly instructions. This one-piece suit is cut from nylon lycra performance fabric, and the seams run lengthwise through the garment to reduce drag in the water.

The suit is made from five pieces of fabric. The front and back pieces are cut on a fold (pattern is half as wide as needed, with fold lengthwise along the center of the garment). The back includes the back of the headpiece. The front of the headpiece, the sleeve and the back insert are cut flat.

The suit uses several types of elastic. A narrow, 0.25-inch elastic about 10 inches long is sewn to front neckline. A wide, 2-inch wide elastic about 12 inches long holds the back insert. A medium, 1.5-inch wide elastic with two wavy lines of silicone (silicone edging) is used around the face, each wrist and each angle. The silicone helps hold the elastic in place but creates friction on the sewing surface or machine (a piece of tissue is ideally used between the silicone and sewing surfaces to help eliminate that drag while sewing, then removed).

The original pattern was drafted to fit measurements for a woman ~65" tall with measurements for size medium (~3 yards of performance nylon blend fabric, ~4 feel of silicone edging). The suit was tailored to fit, with adjustments to remove fabric around face by changing the seam at forehead and to remove fabric from the side seams along waist and hip. The suit fits snugly, with the body entering the suit through the neck area, so be sure to allow room in neck. The elastic was not stretched as sewn to neck. Elastic there serves both to prevent overstretching the fabric and shoulder seam when stretching to enter the suit and to help hold the front in place when the front of hijab is tucked into the front of the suit. The front hijab piece is cut long so the bottom can be trimmed as desired. Other pieces should be adjusted in the pattern to ensure enough length and width of pieces for the person who will wear the suit.

Originally most seams were sewn with a 4-thread overlock serger, which allows some stretch in the seams. Elastic was attached with a sewing machine. For the back insert, the elastic is sewn at top/bottom. It should hold in the sides (alternating sides), and be short enough to snug in the fabric lengthwise by an inch or so. For the neckline, the elastic is sewn to inside. For the face, wrists and angles, one long edge of the silicone edging is sewn to the fabric outside, then turned to inside so there is a smooth edge with the elastic hidden from outside, with the silicone side facing what will be against the body. Sew the other long edge of the elastic to the suit with a stretchy stitch (narrow zigzag or multi-step zigzag).

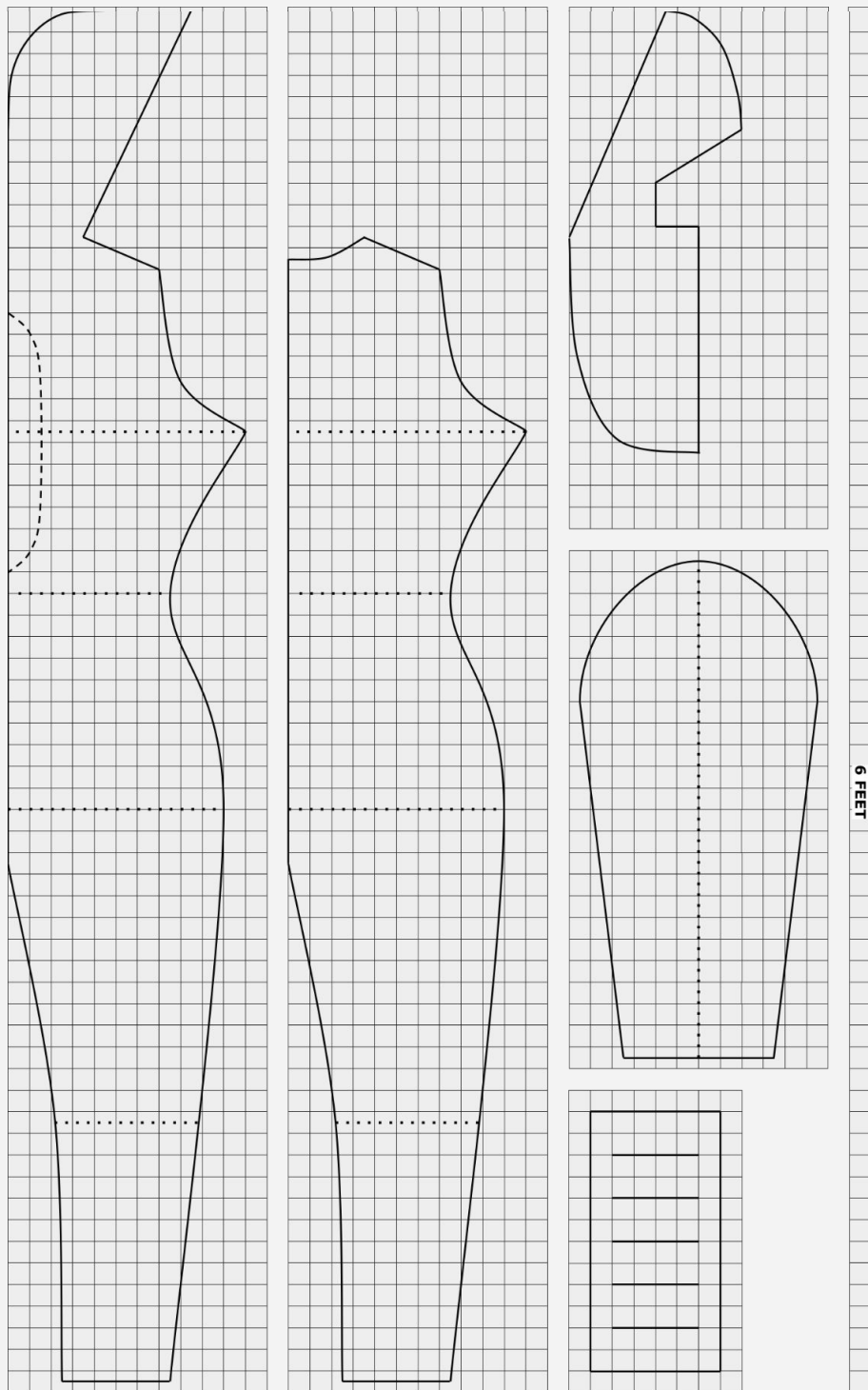
In addition to the modest base design, The Opportunity is designed to utilize a modesty cloak to be worn when outside of the water for additional modesty. This cloak can be substituted for a large towel or cloak as can be found where beachwear and apparel is sold. The original cloak for the suit was a modified polyester water-resistant cloak, which can be found at many online retailers.





THE OPPORTUNITY PATTERN

WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT



Fabric Pattern

— Cut lines

■ ■ ■ Adjustment lines

— ■ Back insert location

□ 1" grid



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#6



ASSEMBLY INSTRUCTIONS

WORLD'S FIRST COMPETITIVE HIJABI SWIMSUIT

Assembly Instructions

1. Measure chest, waist, hip, bicep, wrist and ankle, and the length of inner leg (crotch to ankle), length from side waist to ankle, shoulder to wrist, and back neck to waist.
2. Adjust pattern as needed to ensure fabric for each piece will be long enough and narrow/wide enough for the person. The pattern can be printed and then adjusted with cutting/folding/taping the paper as needed along the recommended adjustment lines. Examples of adjustments are for a taller or shorter person, or size small, large or larger.

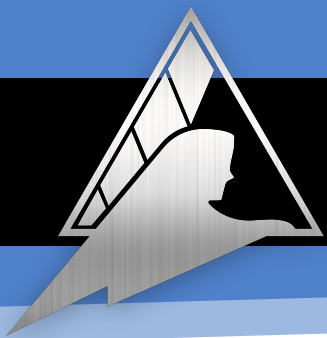
Guide lines are marked for ideal places to make the adjustments in each piece. If person is taller, then likely need to cut/spread the front, back and sleeves along the horizontal lines so they are longer. If the person is shorter, then likely need to fold or cut/overlap the front, back and sleeves along the horizontal lines so they are shorter. For example, if a person is 68 inches tall, then three inches can be added to the length. These can be distributed as three one-inch increases in length of the pattern below the bust, below the waist, and near the knee.

For a size small, large or larger, adjust along the vertical guide lines to fold, cut/overlap or cut/spread the front, back and sleeve the needed amount. For example, for a size large or larger, cut the front, back and sleeve along the vertical guide lines and spread the needed amount, inserting additional paper as needed, and taping into place. For the sleeve, the amount can be added in one place, with the change in the sleeve cap needing to be also added to sleeve area, with part to the front and part to the back above the bust.

3. Lay paper pattern on fabric, ensuring that the direction with greatest stretch runs the length of the garment and that the front and back are aligned on a fold, and the sleeve and front of hood are on two layers of fabric. Cut one front, one back, one back insert, two sleeves and two fronts of hood.
4. Shape the back insert: cut the crosslines. Fold/weave elastic through the pieces. Tack elastic/folds at top/bottom. Shape fabric from square corners to rounded so the piece is oval. Cut oval from center back seam, and insert the shaped piece into the center back.

5. Shape hijab: sew seam at front of hijab (vertical by chin). While flat, sew elastic with silicone around face opening, with ends at top/forehead. Sew each front of the headpiece to the back of the hood (vertical seam from neck to top of head by ears). Pin seam along top of head and adjust as needed for fuller/lesser amount of hair in back/elastic over face/seam at forehead.
6. While flat, sew narrow elastic to center front.
7. While flat, sew elastic with silicone to wrist edge of each sleeve.
8. Sew front to back at shoulder.
9. Align center of sleeve cap to shoulder seam, and points of sleeve to front/back by side seam. Sew sleeve to body, stretching to fit as needed.
10. Align side seam from wrist to ankle and sew the seam.
11. While flat, sew elastic with silicone to ankle edge of each leg.
12. Align inner leg seams, then sew as one seam from inner ankle of one leg to crotch to other inner ankle.

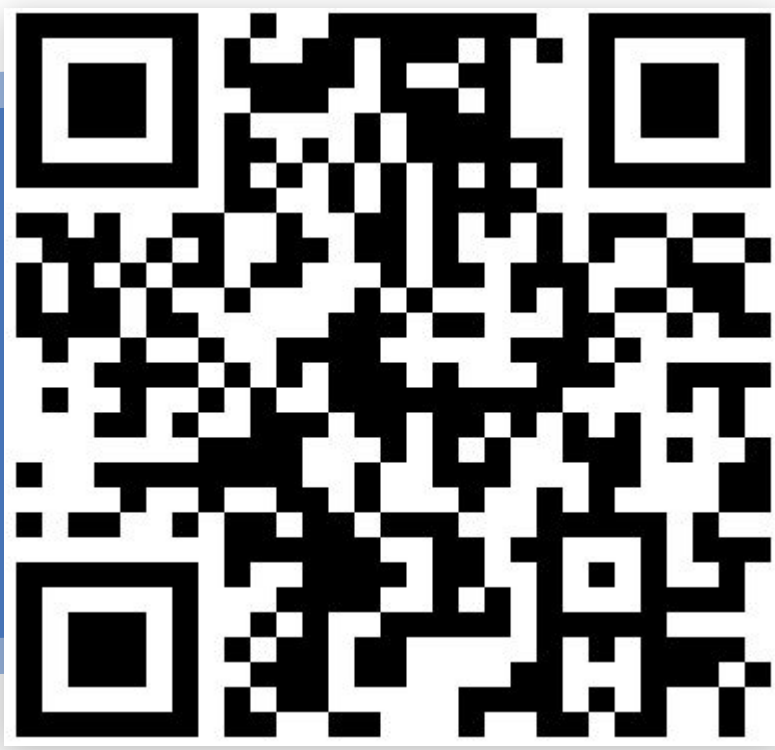




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Feel free to
reach out with
any questions
or comments!

