



# BFR - Team 2

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# Description of systems and users

## Systems

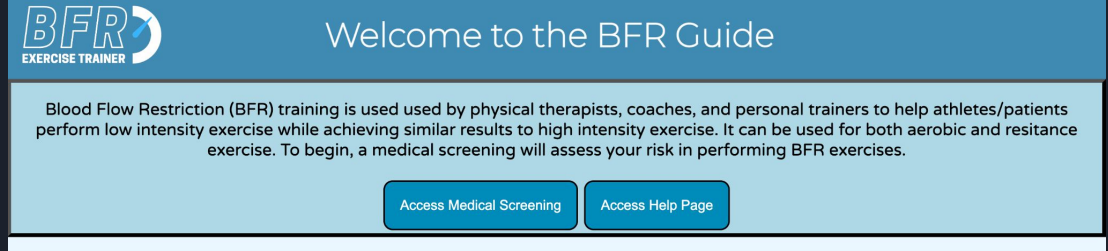
- Welcome page with information about BFR and what this app offers
- Screening form to calculate risk level
- Allow user to select equipment that can be used based on risk level
- Allow user to learn about the equipment available
- Allow user to input information to calculate a suitable restriction level

## Users

- Physical Therapists
  - Use tool for their patients doing rehabilitation
- Athletic Coaches
  - User the tool for their athletes doing rehab or strength training
- Medical Professionals
  - Use tool for elderly, patients, or research/education depending on their job

# Welcome Page

- Provides logo and page identifier in header
- Provides links to help page and screening form
- Describes purpose of application



The screenshot shows a web page header with a blue background. On the left is the BFR logo, which consists of the letters 'BFR' in a bold, blue, sans-serif font, with 'EXERCISE TRAINER' in a smaller, blue, sans-serif font below it. To the right of the logo is a white circular icon containing a blue play button symbol. To the right of the logo and icon, the text 'Welcome to the BFR Guide' is displayed in a white, sans-serif font. Below the header, the main content area has a light blue background. It contains a paragraph of text: 'Blood Flow Restriction (BFR) training is used used by physical therapists, coaches, and personal trainers to help athletes/patients perform low intensity exercise while achieving similar results to high intensity exercise. It can be used for both aerobic and resistance exercise. To begin, a medical screening will assess your risk in performing BFR exercises.' At the bottom of this section, there are two blue buttons with white text: 'Access Medical Screening' and 'Access Help Page'.

**BFR**  
EXERCISE TRAINER

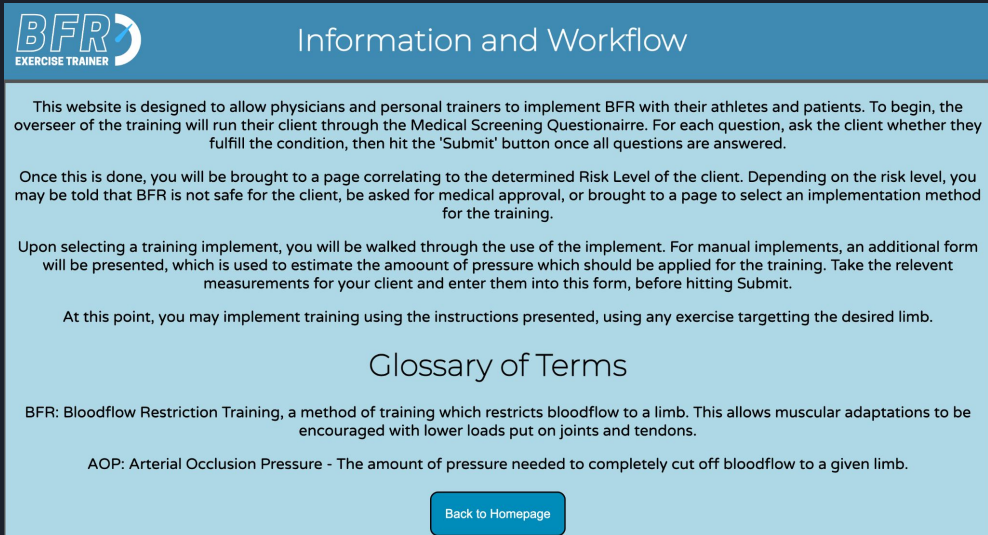
## Welcome to the BFR Guide

Blood Flow Restriction (BFR) training is used used by physical therapists, coaches, and personal trainers to help athletes/patients perform low intensity exercise while achieving similar results to high intensity exercise. It can be used for both aerobic and resistance exercise. To begin, a medical screening will assess your risk in performing BFR exercises.

[Access Medical Screening](#) [Access Help Page](#)

# Help/Info Page

- Describes the functionality of website
- Provides list of terms and their meanings
- Directs you back to the homepage to begin your screening
- We know it is center aligned, Professor, we will fix this



The screenshot shows the 'Information and Workflow' page of the BFR Exercise Trainer website. The page has a light blue header with the BFR logo and the title 'Information and Workflow'. The main content area is white with blue text. It contains several paragraphs of text explaining the website's purpose and the workflow for users. A 'Glossary of Terms' section is also visible, defining BFR and AOP. At the bottom right, there is a blue button labeled 'Back to Homepage'.

**BFR**  
EXERCISE TRAINER

## Information and Workflow

This website is designed to allow physicians and personal trainers to implement BFR with their athletes and patients. To begin, the overseer of the training will run their client through the Medical Screening Questionnaire. For each question, ask the client whether they fulfill the condition, then hit the 'Submit' button once all questions are answered.

Once this is done, you will be brought to a page correlating to the determined Risk Level of the client. Depending on the risk level, you may be told that BFR is not safe for the client, be asked for medical approval, or brought to a page to select an implementation method for the training.

Upon selecting a training implement, you will be walked through the use of the implement. For manual implements, an additional form will be presented, which is used to estimate the amount of pressure which should be applied for the training. Take the relevant measurements for your client and enter them into this form, before hitting Submit.

At this point, you may implement training using the instructions presented, using any exercise targeting the desired limb.

### Glossary of Terms

**BFR:** Bloodflow Restriction Training, a method of training which restricts bloodflow to a limb. This allows muscular adaptations to be encouraged with lower loads put on joints and tendons.

**AOP:** Arterial Occlusion Pressure - The amount of pressure needed to completely cut off bloodflow to a given limb.

[Back to Homepage](#)

# Screening form page

- User fills out form and is redirected to a page for their given risk level
- Plan to have sex be a radio button, and age/bmi be entered via text fields

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## Screening Form

**Check all that apply:**

Family history of clotting disorders(e.g., Lupus, hemophilia, high platelets)

Level 1 hypertension of greater (SAP >= 140 mmHg)

History of deep vein thrombosis or pulmonary embolus

40-50 years old

Female

BMI 25-30

Submit

# Risk Level 1 Page

- If there is a low risk level, then people are allowed to choose their preferred option for exercise.
- The manual cuff system option will redirect to the input page and to select lower/upper body exercises.
- Each image redirects to the specific exercise instructions page .


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## Screening Form

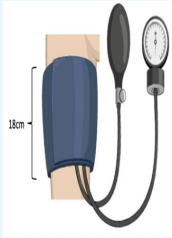
### Risk Level 1

Very low Risk  
BFR is safe to perform


Please select your preferred option



Automated Pneumatic Cuff System



Manual Pneumatic Cuff System



Knee wrap/band

# Risk Level 2 and 3 Page

- For risk levels 2 & 3, only two options are available to choose for exercise.
- The manual cuff system option will redirect to the input page and to select lower/upper body exercises.
- The only difference is, there is 11 cm width cuff for level 2, not for level -3 in Manual Pneumatic Cuff System.


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## Screening Form

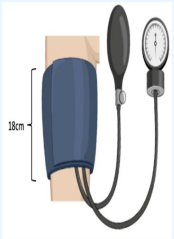
### Risk Level 2 & 3

Low & Moderate Risks  
BFR is safe to perform

Please select your preferred option



Automated Pneumatic Cuff System



Manual Pneumatic Cuff System


# Risk Level 4 Page

- For risk level 4, medical approval is requested
- If yes, brought to risk level 3 page
- If no, brought to BFR not approved page



## Screening Form

Do you have medical approval?

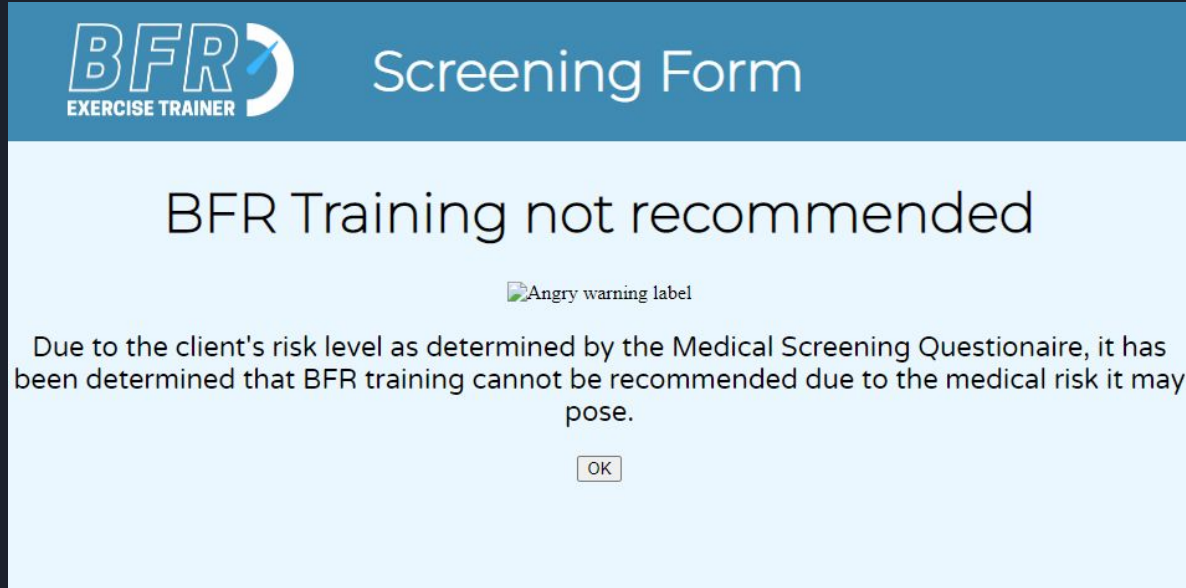
 Warning label

Due to the client's risk level as determined by the Medical Screening Questionnaire, it has been determined that BFR training may not be safe for the client. BFR training can only be recommended to the client under medical supervision and approval



# Risk Level 5 Page

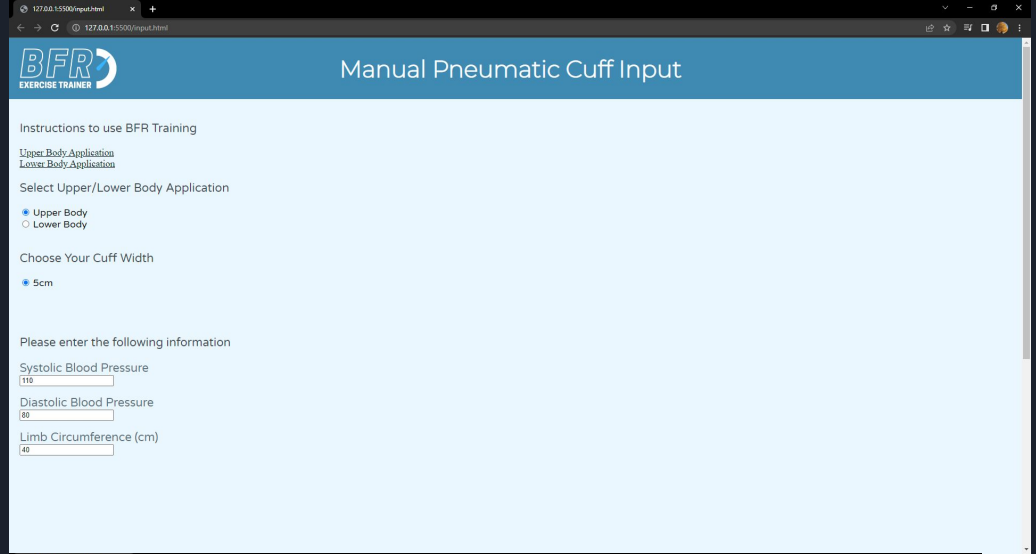
- For risk level 5, BFR training is not recommended. Clicking the “Ok” button returns to home page.



The screenshot shows the BFR Exercise Trainer Screening Form interface. At the top, the logo for BFR Exercise Trainer is on the left, and the title "Screening Form" is on the right. The main content area displays the message "BFR Training not recommended" in a large font. Below this, there is a small icon of an angry face with the text "Angry warning label". The warning text reads: "Due to the client's risk level as determined by the Medical Screening Questionnaire, it has been determined that BFR training cannot be recommended due to the medical risk it may pose." At the bottom of the message, there is a small "OK" button.

# Input Page

- User inputs medical information
- Calculations are made
- User is redirected to result slider page



127.0.0.1:5500/input.html

**BFR**  
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## Manual Pneumatic Cuff Input

Instructions to use BFR Training

[Upper Body Application](#)  
[Lower Body Application](#)

Select Upper/Lower Body Application

Upper Body  
 Lower Body

Choose Your Cuff Width

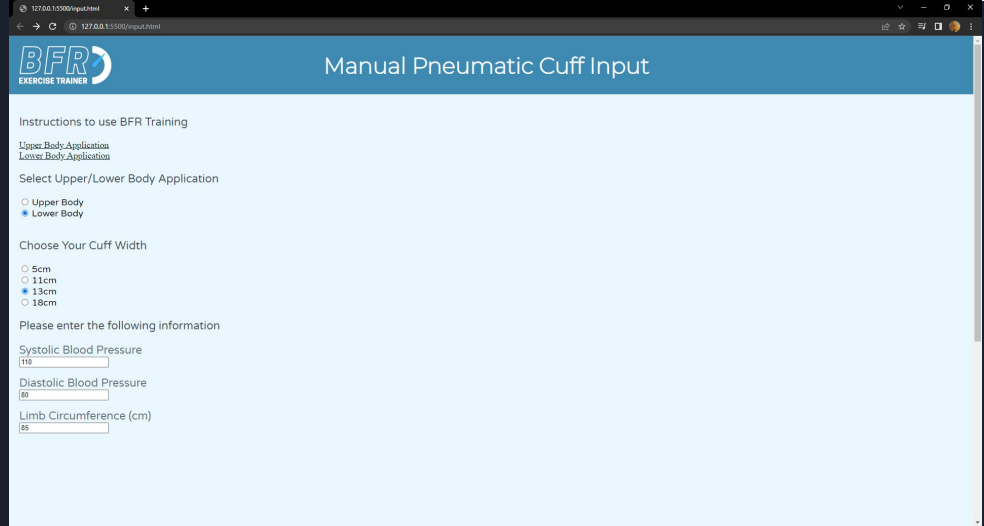
5cm

Please enter the following information

Systolic Blood Pressure

Diastolic Blood Pressure

Limb Circumference (cm)



127.0.0.1:5500/input.html

**BFR**  
EXERCISE TRAINER

## Manual Pneumatic Cuff Input

Instructions to use BFR Training

[Upper Body Application](#)  
[Lower Body Application](#)

Select Upper/Lower Body Application

Upper Body  
 Lower Body

Choose Your Cuff Width

5cm  
 11cm  
 13cm  
 18cm

Please enter the following information

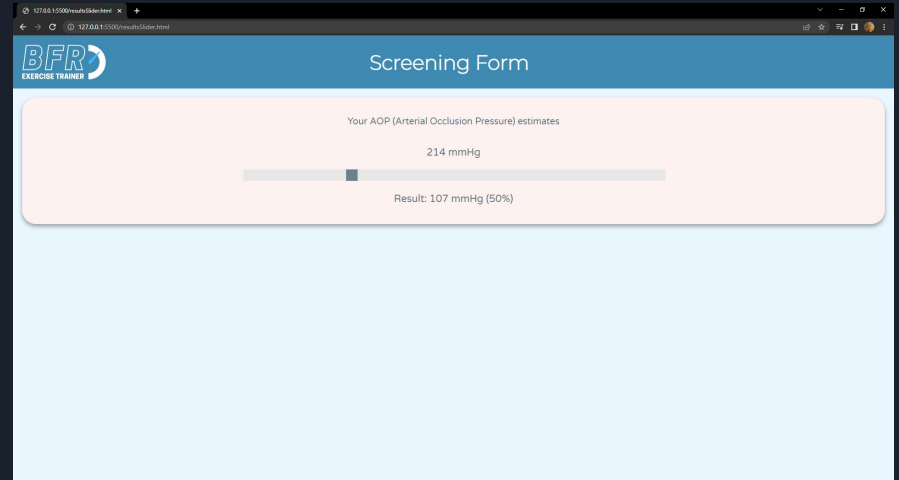
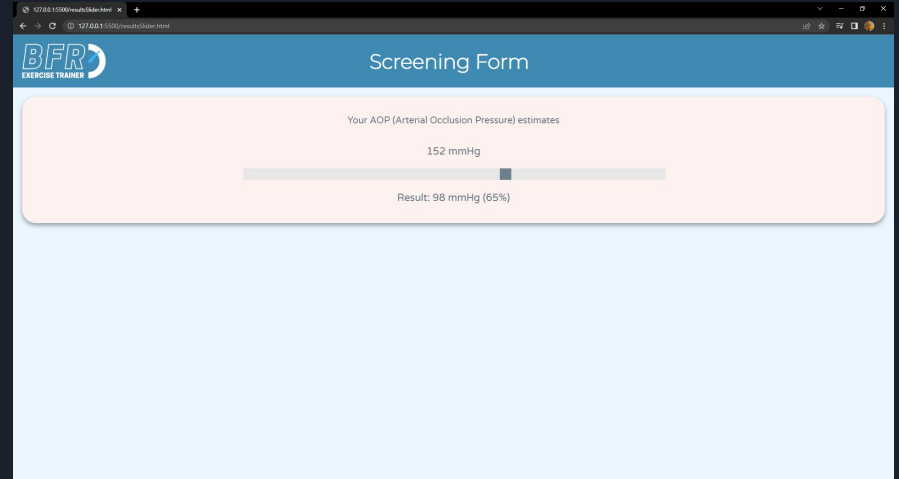
Systolic Blood Pressure

Diastolic Blood Pressure

Limb Circumference (cm)

# Results Page

- Slider for user to see all recommended levels





# Potential Usability Concerns

- Lack of knowledge of BFR could be an issue for a user
- Use cases where user misclicked or mistyped in a form that they submitted
- Lack of knowledge or understanding of use of manual pneumatic devices
- Lack of knowledge or understanding of use of self-use wraps or bands



# What is done, what needs to be done

## What is done

- Functionality of risk level assessment
- Functionality of AOP calculation
- Flow of pages in risk level assessment and equipment selection
- Major design implementation

## What is left to do

- Deletion of the results on input page
- Cleaning up small details on alignment issues
- Small verbiage or labelling issues
- Usability testing