

What-if Analysis

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Use Assessment Tool Data to Guide Improvement Design

Use Assessment Tool Data to Guide Improvement Design



What if...

we could reduce the weight by 10 pounds?

we could reduce horizontal location by 8 inches?

we improve upper arm posture by 20°?

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What-if Analysis is a powerful tool that uses ergonomic assessment tool data to guide ergonomic design. The goal of the improvement planning process is to plan an improvement that gets the task within an acceptance risk threshold. The what-if analysis tool ensures you can do just that.

You can ask questions like, what would the risk index be if we could reduce the weight of the object by 10 pounds? What if we could reduce the horizontal location by 8 inches? What if we could improve upper arm posture by 20°?

By using assessment tool data to guide your design, you can know in advance whether an improvement will be effective at reducing risk or not.

Initial Assessment

Initial Assessment

ANALYSIS AND PLAN

WISHA Lifting Calculator

Actual Weight

100

Vertical Hand Position

Above shoulder

Horizontal Hand Position

Near (7 inches or less)

Frequency

1 lift every 2-5 minutes

Duration

1 hour or less

Twisting 

Less than 45 degrees

45 degrees or greater

CALCULATE

INITIAL

Risk

Risk Index

1.81

Assessment Results

Unadjusted Weight Limit	65.00
Twisting Adjustment	0.85
Adjusted Weight Limit	55.25
Limit Reduction Multiplier	1.00
Weight Limit	55.25
Lifting Index	1.81

When you open the what-if analysis tool, you will see the inputs and outputs of the initial assessment.

Enter Changes and Hit Calculate

Enter Changes and Hit Calculate

ANALYSIS AND PLAN

WISHA Lifting Calculator Learn

Actual Weight
45

Vertical Hand Position
Waist to shoulder

Horizontal Hand Position
Near (7 inches or less)

Frequency
1 lift every 2-5 minutes

Duration
1 hour or less

Twisting Learn

Less than 45 degrees

45 degrees or greater

CALCULATE ←

INITIAL

Risk

Risk Index 1.81

Assessment Results

Unadjusted Weight Limit	65.00
Twisting Adjustment	0.85
Adjusted Weight Limit	55.25
Limit Reduction Multiplier	1.00
Weight Limit	55.25
Lifting Index	1.81

To use the tool, make a change to the inputs and hit calculate. In this case, we'll reduce the weight to 45 pounds and move the vertical hand position to "Waist to shoulder" and hit calculate.

See New Potential Risk Index and Variable Data

See New Potential Risk Index and Variable Data

The screenshot displays the WISHA Lifting Calculator interface, divided into three main sections: ANALYSIS AND PLAN, INITIAL, and RESULTS.

ANALYSIS AND PLAN: This section contains the calculator's input fields. The "Actual Weight" is set to 45. The "Vertical Hand Position" is "Waist to shoulder". The "Horizontal Hand Position" is "Near (7 inches or less)". The "Frequency" is "1 lift every 2-5 minutes". The "Duration" is "1 hour or less". There are radio buttons for "Twisting": "Less than 45 degrees" (unselected) and "45 degrees or greater" (selected). A "CALCULATE" button is at the bottom.

INITIAL: This section shows the initial assessment results. The "Risk Index" is 1.81. The "Assessment Results" table is as follows:

Assessment Results	
Unadjusted Weight Limit	65.00
Twisting Adjustment	0.85
Adjusted Weight Limit	55.25
Limit Reduction Multiplier	1.00
Weight Limit	55.25
Lifting Index	1.81

RESULTS: This section shows the results after adjustments. The "Risk Index" is 0.76, which is circled in green. The "Assessment Results" table is as follows:

Assessment Results	
Unadjusted Weight Limit	70.00
Twisting Adjustment	0.85
Adjusted Weight Limit	59.50
Limit Reduction Multiplier	1.00
Weight Limit	59.50
Lifting Index	0.76

At the bottom of the RESULTS section are "SAVE" and "CANCEL" buttons.


After the calculations run, you can see exactly how your changes would impact the Risk Index as well as specific tool variables. At this point, you can continue making changes to the inputs. Each time you hit calculate, new results will display so you can see how the changes would impact the score.

After you're done making changes, you can click save and that will save down the new inputs as your planned improvement.

Save as Planned Improvement

Save as Planned Improvement

- You can save the What-If Analysis results as your planned improvement
- You can always come back and edit later if improvement plans change

 Conduct What-If Analysis

Tool	Initial	Planned	Risk Reduction	
WISHA Lifting Calculator	1.81	0.76	-58%	GO

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Once you have your planned improvement saved, you can always come back later and make edits if your improvement plans change.