Determining STEP Height

The STEP platform height that should be used in a Group Active or Group Step class is different for every individual. The maximum is an important piece of information because it determines the safe range of Stepping height that a participant should use. Stepping at or below the maximum height helps protect the knee joint from injury by keeping the joint stress in a safe range.

**Biomechanics Of Stepping**
When you take a step, as your knee bends the knee cap compresses into your thigh bone. This is the function of the knee cap and is also why our knees have cartilage. The cartilage disperses the pressure of the knee cap on the thigh bone that is incurred during normal activities. The more you bend your knee when you take a step, the greater the pressure the kneecap puts on the thigh bone. When the knee is bent to 10 degrees, taking a step creates pressure between the kneecap and the thigh bone that is approximately half of your body weight. When the knee is bent to 60 degrees the stress increases to 3 and a half times your body weight. At 90 degrees or greater the pressure can be 8 times your body weight or more. For a 135 pound person this equals a whopping 1080 pounds of pressure the kneecap is exerting on the thigh bone. If this stress is repeated over time the potential for injury to the structures of the knee increases tremendously.

A knee bend of 60 degrees or less is within the safe range of stress on the knee for repetitive movements like Step training. This 60 degree knee angle is what determines the maximum number of risers that can be used under the STEP platform and still keep the stress at a safe level.

**Determining Maximum Step Height**
The maximum STEP platform height that can be used by any particular individual is determined by the length of that participant’s legs. While taller people do have longer legs in general, it is important to understand that it is leg length, and more specifically inseam measurement, rather than an individual’s height that is used to determine the maximum safe STEP height.

The inseam measurement is the distance from the highest point on the inside of the thigh to the bottom of the ankle bone on the inside of the leg. This is the same measurement that a tailor would use in determining the length of a pair of pants.

You will need assistance when determining this measurement. Hold the end of a flexible tape measure at the highest point of your inner thigh. You will feel the rigid pubis bone when you find the right place. Find the distance to the bottom of the ankle bone of the inside of the same leg with the other end of the tape measure. The distance from top to bottom is the inseam measurement.

The following table summarizes the STEP height recommendations based on these measurements. Understand that these guidelines represent the recommended maximum STEP height for use in class. These recommendations will put you in a safe range that will help avoid excessive stress or injury for the knee joint.

<table>
<thead>
<tr>
<th>SUMMARY TABLE</th>
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<tbody>
<tr>
<td>Inseam Measurement</td>
</tr>
<tr>
<td>Less than 26 inches</td>
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<tr>
<td>26 up to 32 inches</td>
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<tr>
<td>32 up to 36 inches</td>
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<td>36 inches or more</td>
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**Recommended Height, Not Required Height**
If you choose, it may be acceptable to Step on a higher platform if you do not have a history of knee problems and you do not feel pain while doing so. Understand that this does put additional stress on the knee joint that could lead to injury over time.
Also, any STEP height that is lower than the maximum is also an acceptable option. BTS does not advocate that the maximum STEP height is what must be used for an effective class and a lower STEP height can still provide plenty of intensity.

Here are some reasons why you may choose a lower STEP height:

- Fitness level
- Experience with Step training
- Previous knee or leg injuries, or
- The desired training intensity on any given day

Lower intensity and safety are not the only reasons to choose a lower STEP height. For some, using a lower STEP provides the opportunity to use bigger movement options like bigger arm movements, jumping higher or traveling wider. This can help you break through a fitness plateau by getting your body used to the bigger movements, or it may just be that it is more fun to Step lower and go bigger. You need not always or ever Step at your maximum STEP height to get a great workout.

**Let’s Move**

STEP platform height is all about safety and options. It is not about what other people are doing. Know your range and understand that lower is okay. You might even choose to vary it from week to week or class to class.