Body Weight Dip

Introduction

The dip is a bodyweight exercise usually performed using parallel bars. There are numerous ways to vary the intensity of this exercise. If you are a very strong exerciser you may strap a weight around your waist to make this movement more challenging. If you want a less demanding variation utilize the bench dip. Or select a machine to perform seated dips or another type of device that actually helps counterbalance some of your bodyweight to make dips easier. Whichever type of dip you perform, the muscles worked in this effective upper body exercise are the same. Muscles such as the Pectoralis Major are the two large muscles of the chest. Tricep Brachii, the group of muscles on the back of the upper arm. The Triceps are essential to the pushing motion of the arms. Triceps make up about two-thirds of the muscle mass of the upper arms. Posterior Deltoid is located on the back of the shoulder and plays a major role in maximizing the size and shape of your shoulders. The purpose of the muscle is primarily transverse extensions, meaning movement of the arm horizontally away from the chest. Anterior Deltoid is located on the front of the shoulder and plays a major role in Flexion, horizontal adduction and internal rotation of glenohumeral joint. The Trapezius is a “large, flat, triangular sheet of muscle. It lays over your middle back, upper back and neck. Highlighted below are the muscles used during the body weight dip (see Figure 1).

Figure 1: Muscles involved in the Body Weight Dip. A: Posterior Deltoid and Anterior Deltoid, B: Pectoralis Major, C: Tricep Brachii, and D: Trapezius (retrieved Wikipedia).

Figure 2: Body weight dip phases A: Mid phase, B: Start phase.
Muscle Activation

Schanke (2012) and Melo and Cafarelli (1995-1995), reported the electromyographic (EMG) activation of different muscles during the body weight dip (See Table 1). As can be observed from Table 1 certain muscle groups resulted in greater activation during the dip. The main findings of these studies were that the Tricep Brachii and Pectoralis Major produced the greatest muscle activation (85 to 88% - maximum voluntary isometric contraction - MVIC). Significantly less EMG activation was associated with the Anterior Deltoid (39.2% MVIC), Posterior Deltoid (20.6%MVIC) and Trapezius (10 to 39% MVIC).

<table>
<thead>
<tr>
<th>Muscle</th>
<th>MVIC%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pectoralis Major</td>
<td>85</td>
</tr>
<tr>
<td>Posterior Deltoid</td>
<td>21</td>
</tr>
<tr>
<td>Anterior Deltoid</td>
<td>39</td>
</tr>
<tr>
<td>Tricep Brachii</td>
<td>88</td>
</tr>
<tr>
<td>Trapezius</td>
<td>10</td>
</tr>
</tbody>
</table>

*MVIC = Maximal voluntary contractions

Table 1: Greatest muscle activation (EMG) during body weight dips.

References


Schanke, W.N. (2012), Electromyographical analysis of the pectoralis major muscle during various chest exercises. MS in Clinical Exercise Physiology.