

# Neuromuscular Basis of Instability Training with T-BOW

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## INTRODUCTION

The T-BOW is a curved training and therapy tool. Supporting loads over 350 kg, it is 70x50x15 cm and weighs 3.2 kg. Both elastic and reactive, it is useable on both sides and has narrow flat edges on its concave surface (1).

## METHOD

Analysis of practical experiences and selective neuromuscular research comparing the T-BOW with other unstable devices (2).

## RESULTS

Deadlifts performed on the T-BOW produced larger levels of strength and paraspinal muscle activity than those performed on a much softer tool like the Bosu. A lower-limb training program in healthy elderly women using the T-BOW device showed significant improvements in static balance, dynamic balance and overall balance. (3).

The spinal stretch reflex responses created by the narrow, ever changing angle of foot support while balancing on the T-BOW show the specificity and outstanding interaction of all interoceptive and exteroceptive sensations for control and regulation of movement. The remarkable reactivity of the T-BOW is very effective for improving balance in hard surfaces where many indoor and outdoor sports are practiced.

The support on a flat surface demands less bilateral control and less rapid adjustment than on a curved, rounded and narrow-edged surface like the T-BOW; where a faster change of lateral foot control is required. This increased bilateral control potentiates intra and inter-muscular static-dynamic relaxation with advanced levels of segmental independence; all of which are relevant to activities and sports practiced on uneven and varied-design surfaces.

In the basic unstable position of the T-BOW there is one axis causing movement instability. This is beneficial in creating very basic levels of imbalance that are already a challenge for many people. You can also spin (rotation in the vertical axis) and thus have two axes of imbalance during this action. If necessary you can use two T-BOW's (convex sides in contact) to have two constant axes of imbalance.

## DISCUSSION

Before designing any training with unstable devices, one should carefully analyze the following criteria:

- 1) The level of static-dynamic reactivity of the device and training surface.
- 2) The conditions of support for each body part.
- 3) The axis of instability and the range of imbalance.
- 4) How slippery is the contact between the device and body.

The T-BOW provides numerous options for effective instability training, for coordination and conditioning optimization, in fitness and sports performance.

## REFERENCES

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