



The ToePro Dynamometer

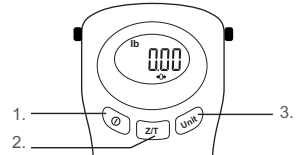
Thank you for purchasing the ToePro Dynamometer. The ToePro Dynamometer is an adapted digital scale. To read the full information about using this product and to watch a video, go to www.mytoepro.com.au.

Please read all operating instructions carefully before use. Scales are precision measuring devices and should always be handled with proper care. To ensure years of reliable service, keep these simple tips in mind:

- Do not exceed the scale's maximum capacity of 60kg.
- Store your scale in a clean, dry location. Dust, dirt, and moisture can accumulate on the weighing sensors and electronics causing inaccuracy or malfunction.
- Avoid using your scale in close proximity to strong radio wave emitting devices such as cordless phones.
- Do not drop items onto the weighing hook. This may cause damage to the load sensor.
- Avoid dropping your scale.
- The warranty does not cover damage due to rough treatment or overload.
- Check the batteries first if you are having any trouble with your scale. This simple step can remedy most scale issues.
- Calibration should be checked and adjusted occasionally as part of routine scale maintenance.

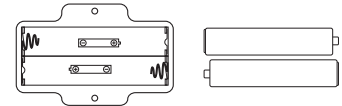
Key Description

1. **ON/OFF** - Turns the scale on or off.
2. **Zero/Tare Key** - Re-zeros the scale.
3. **Unit Key** - Tap to change the displayed unit of measure. Hold to enter calibration (see below).



Battery Installation

Proper Battery Installation



Low batteries can cause inaccuracy in digital scales. If you are experiencing issues with your scale, first try new batteries. Most times, this will solve the problem.

1. Before using the scale for the first time, check the battery compartment and remove any plastic insulation strips or packaging that may be in place to prevent battery drainage during shipping/storage.
2. If you are replacing the batteries, make sure the positive and negative contacts are properly aligned.

Operation as a Dynamometer - Setting to Instant Peak Hold

This scale has three different hold settings. To use this scale as a dynamometer, you need to set the unit to Peak Hold. Follow these instructions to change the hold setting:

1. With the scale OFF, press and hold the **Z/T** key, then tap the **ON/OFF** (ⓘ) key. Release both keys when you see "-----" on the display.
2. Tap the **Unit** key **twice** to show **Peak Hold**.
3. Press the **ON/OFF** (ⓘ) key to confirm your selection and turn the scale off.
4. Turn the scale back on. It is now ready to use. Pull on the hook to test the peak hold.
5. To take a new reading, whilst no weight is on the scale press the Z/T button to zero the device.

PEARL Peak Hold: Highest weight reading is held on the display. "Hold" will display underneath the weight when locked.

Changing the Unit of Measure

1. Press the **Unit** key to change the scales displayed unit of measure.
2. If the scale is turned off then back on, it will default to the last unit used.

Units: lb (pound) ▶ oz (ounce) ▶ kg (kilogram)

Specifications	PK-110	
Max. Capacity	0-44lb	44-110lb
Readability	0.05lb	0.1lb
Min. Weight	100g / 0.2lb	
Power	2 x 1.5V "AAA" Alkaline	
Dimensions	4.8 x 3.5 x 1.0 in.	
Warranty	1 Year Limited Warranty	

Calibration

Initial calibration is performed at the factory. However, calibration may need to be checked and adjusted in some rare cases, or after heavy usage. To check calibration:

1. Place the required calibration weight on the scale and note the displayed value.
2. If the displayed value is not within acceptable tolerance (see chart below), adjustment is required.

Acceptable Tolerance (±)	Calibration Weight	Recommended Accuracy Class
60g	20kg	OIML M2

Adjustment

1. Press and hold the **Unit** key until the display shows "CAL" followed by a random number (ISN).
2. Make sure nothing is on the weighing hook then press the **Z/T** key.
3. The display will flash "20.00kg". Place exactly 20.00kg on the weighing hook, and press Z/T when the weight has steadied.
4. The display will flash "PASS" then return to normal weighing mode. Adjustment is complete!

Troubleshooting

Problem: Scale will not turn on

Solution: Check the batteries and battery contacts.

Problem: Displayed weight fluctuates randomly

Solution: Nearby radio wave emitting devices can cause fluctuations.

Problem: Displayed weight is inaccurate

Solution: Perform a calibration adjustment. If you are still having trouble, contact MyToePro - Australia for advice.

Error Codes

OUTZ - Zero point has drifted out of the acceptable range. Try to perform a calibration adjustment. If the problem persists, the load cell may be permanently damaged due to overloading.

EEEE - Overload. The maximum capacity has been exceeded. Remove the extra weight to avoid permanently damaging the load cell.



Batteries are low. Replace the batteries.



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About Us

Specialists in foot education
and treatment products



The ToePro Dynamometer

Using the Toe Strength Dynamometer

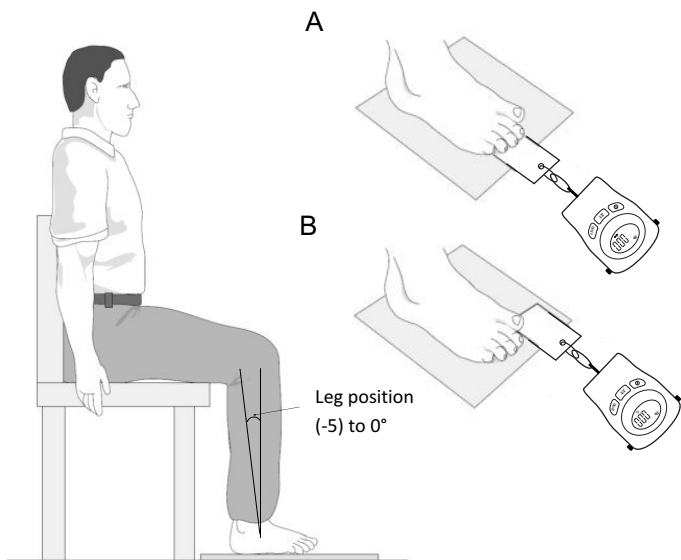


Fig. 1: Toe plantarflexor strength testing. A, Lesser toes B, Hallux

Adapted from: Menz, Hylton B., et al. "Plantarflexion strength of the toes: age and gender differences and evaluation of a clinical screening test." Foot & ankle international 27.12 (2006): 1103-1108.

1. The patient should be seated comfortably with their leg placed at 90 degrees or inclined backwards towards the patient up to 5 degrees (Fig.1). It is best to have the leg slightly back to ensure the patient is not leaning their bodyweight onto the card whilst a test is being done.
2. Instruct the patient to keep their heel on the ground
3. Place the card under the lesser toes of the patient (A) (not under the forefoot) with the longest part of the card back towards the 5th toe
4. The practitioner then places their hand on top of the patient's foot to keep it stable and to detect if the patient attempts to lift their heel from the ground.
5. The patient is instructed to grip onto the card as firmly as possible whilst you try to draw the card out from underneath their toes.
6. Repeat the test 3 times encouraging the patient with each attempt to press as firmly as possible.
7. You do not need to reset the scale during the 3 tests, just record the highest score in the patient's medical record.
8. Repeat the test on the big toe on the same foot (B) and then repeat the tests on the patients other foot.
9. Be mindful of the testing surface under the card - ideally measurements should occur on floorboards or vinyl flooring. Try to retest patients on the same surface when re-measuring.

If you prescribe the ToePro exercise platform to improve the foot strength of the patient we would highly recommend retesting the patient at each appointment to measure improvement.

Generally as a guide you can expect a 50% improvement in strength test results in a month of using the ToePro device and a doubling of results at 2 months.

Most patients do not see any further improvement in their results past 3 months of use.

The patient should be encouraged to follow the instructions provided with the ToePro carefully, aiming for quality rather than quantity of repetitions. The practitioner is recommended to check at the first review appointment the method in which the patient is using the device to ensure effective use.

Normal and abnormal results for the Toe Strength Dynamometer

If you are new to toe strength testing, it will take a little while to understand the results that you observe. As a general rule, young healthy males can produce about 10% of their bodyweight in force with their great toes. Young healthy women will produce about 5%. The lesser toes will generally be 50-70% of the great toe strength. It is also not uncommon to see 10-20% reductions on the non-dominant side.

In elderly people of around 70 years of age, both men and women produce about 4-5% of their bodyweight. When measuring you should look for substantial reductions in strength a) in comparison to the contralateral foot and b) in comparison to normals. In elderly patients who have had surgery on their toes you may observe very low results below 1kg of force. Immobilisation will also cause substantial strength loss. If there is no history of either of these you should look closely at the medical history. Neurological disease, chemotherapy, diabetes and spinal lesions (e.g. stenosis or herniated discs) are common causes of substantially reduced strength.

You should also be aware that normal results have been developed from shod populations. It is likely in non-shod populations or people that walk barefoot a lot that toe strength results will be substantially higher. Equally, people that wear flat flexible shoes for agility sports will also have significantly elevated results. It is not unusual in this latter group to see results of up to 20kg (e.g. 20% of bodyweight in a 100kg person).

Deciding on whether to treat is done by clinical judgement of the ailment in combination with discussion with the patient. For example an athlete that has good scores may still benefit from enhancing their strength further. Alternatively in people with significant motor neuropathy it may be impossible to improve their strength.

Mean (±SD) **non-normalized** toe plantarflexion strength (in kg) according to age and gender

	Young		Old	
	(Mean 20 yo, 170cm, 70kg)		(Mean 75 yo, 165cm, 77kg)	
	Men	Women	Men	Women
Hallux	6.71 (2.86)	3.21 (1.71)	3.88 (1.95)	2.89 (1.43)
Lesser toes	4.97 (3.16)	2.65 (1.20)	2.88 (1.86)	2.71 (1.41)

Mean (±SD) as % BW according to age and gender.
 $\%BW = \text{strength}(kg) / \text{Weight} \times 100$

	Young		Old	
	(Mean 20 yo, 170cm, 70kg)		(Mean 75 yo, 165cm, 77kg)	
	Men	Women	Men	Women
Hallux	9.59% (4.09%)	4.58% (2.44%)	5.03% (2.53%)	3.85% (1.85%)
Lesser toes	7.1% (4.51%)	3.78% (1.71%)	3.74% (2.41%)	3.51% (1.83%)

Results adapted from: Menz, Hylton B., et al. "Plantarflexion strength of the toes: age and gender differences and evaluation of a clinical screening test." Foot & ankle international 27.12 (2006): 1103-1108.



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