



# ***Longlines - Long Slacklines***

Recommendations for Longliners

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ADVANCED



*Fig. 1: Longlining in public parks requires considerable experience.*

## **Introduction**

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In only a few years, longlining has grown into a very popular discipline that is practiced all over the world among slackliners of all skill levels. Since 2012, a sizeable increase in longline activity has been noted. Longlining is primarily practiced by informal groups and in associations, but also by single individuals. Experience over the past years has shown that longlining can be a very safe and environmentally friendly activity, if best practices are followed.

In the past, usage conflicts between landowners, tree owners, and/or managers, other users and slackliners have occurred. Often, committed local slackliners were able to resolve these conflicts through engaging in discussions with the respective parties to develop and deploy compromises and solutions.

The goal of this publication is to make longliners aware of potential problems as well as best practices to address future challenges for this young sport and prevent conflicts. Furthermore, basic requirements, important behavior guidelines, security aspects, and mistakes commonly made by beginners will be outlined.

Setting up longlines requires experience and appropriate equipment and can thus not be covered in detail within this document. Additional information will be referenced and can best be obtained from local groups as well as regional, national or international associations. The Internet in general and social networks in particular also offer diverse opportunities to gather information.

## **What is a Longline?**

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Slacklines longer than 30 to 40 meters are usually considered longlines. In contrast to commercially available slackline sets using ratchets, longline-sets are usually not yet available in local retail stores.

Dedicated slackline companies develop longline equipment and/or resell equipment developed for applications such as industrial and sport climbing, alpinism, rescue access, nautics etc. Most frequently, pulley systems and custom line-locking devices are used to set up longlines. Complete longline sets as well as specialized longline components are usually available at dedicated online stores.

Thus, longlines are different from typical slackline sets, not only because of the required length of the webbing, but also because of the additional know-how necessary for the additional components, proper anchoring, as well as for choosing suitable terrain for setting up a longline.

The loads occurring in a longline setup depend on the local terrain (flat or more bowl-shaped), the height of attachment and the weight of the slackliner. Frequently, longline loads (“base tension”) vary between 4 and 8 kN. However, most recently, longliners tend to favor loads of 6 kN and less. A typical longline system safe working load of 10 kN and a breaking strength of 30 to 70 kN.

## **General Considerations for novice longliners:**

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- 1. Your first longline** should, if possible, be rigged together with experienced longliners. This will allow you to learn the most important principles of longlining (choosing a spot, rigging, tree protection, walking,...). In turn, this also means that more experienced longliners should support novice longliners.
- 2.** Every longliner should be aware of the fact that longlining is a **relatively unknown sport**. Longlines may thus appear to be very fascinating and sometimes scary or risky to passersby.
- 3.** It is important to **study user manuals and tutorial videos** of manufacturers and resellers.
- 4.** You should be ready to perform **first aid** in case of an emergency.



Fig. 2: While people are using the longlines, fellow slackliners keep an eye on the surroundings.

## Requirements for Choosing a Spot

- 5. Choosing a suitable spot** is essential: know your slacklining spots and check local conditions and laws beforehand if possible.
- 6. Potential for conflict** should be considered and a different spot chosen if in doubt. The following issues need to be considered:
  - a.** Other users of the area as well as passersby;
  - b.** Conditions and restrictions;
  - c.** Bans on using trees as attachment points;
  - d.** Specific park rules; and
  - e.** General environmental laws.
- 7.** You should be particularly attentive **when slacklining in public parks and recreational areas:**
  - a. Do not longline by yourself.**
  - b.** Be mindful of how popular and crowded a space is. You may want to prefer:
    - i.** Fall and winter (parks are very crowded especially during summer);
    - ii.** Cooler days (when it is cold outside, fewer people go to parks even on sunny days);
    - iii.** Weekdays (parks are more crowded on weekends);
    - iv.** Cloudy days (sunny days draw bigger crowds to parks).

**c. You should always be able to monitor your longline.** Choose a length and height that is appropriate for the current situation, so that no unnecessary hazards and conflicts occur.

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**d. Minimize the risk of accidents for uninvolved people:**

- i.** Be mindful of the placement of the longline within the park. A longline should not appear as a barrier.
- ii.** Avoid blocking used pathways, unless anchors are high up and passersby can pass under the longline. Ideally, passersby cannot touch the rig at all.
- iii.** It is often useful to make your longline more visible, so that uninvolved people can become aware of its presence. Bright, high-contrast wind dampeners are a good way to increase visibility.
- iv.** Take longlines down before dusk. Additionally, longlines set up in public spaces should never be left unattended.

**e. In windy conditions, you should also use *wind dampeners*** to prevent excessive vibration and noise which can disturb others. If your line is already vibrating a lot, use a sling or a piece of clothing instead of your hands or arms to stop the vibration.

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**f. It can be useful to also set up a short (3-5m) beginner's slackline** alongside your longline, so that children and other interested people can safely attempt their first steps on a slackline.

**8. It is recommended to choose *flat or slightly bowl-shaped terrain*** to set up your longline. This allows you to increase the sag of the line and thus decrease the base tension of the system. This also means that:

- a.** tensioning takes less effort;
- b.** less energy stored in the system;
- c.** the slackline is higher above the ground when no one is using it.

**9. Having a *soft surface*** (lawn, forest ground, etc.) under your longline should be preferred.

- a.** As a preventive measure, remove any trash and debris (shards of glass, stones, dead branches, bottle caps, etc.) within the fall zone of the line.
- b.** Be aware of uneven ground and hard objects on your path.



Fig. 3: Using high-visibility markers (red wind dampeners) on a longline is very important in public spaces.



Fig. 4: Longer longlines (270 m in this case) are often not possible within urban areas.

- 10.** Actively sensitize others before, during and after walking the longline.
  - a.** Surveil the immediate surroundings on a regular basis.
  - b.** While someone is walking the longline, no one should attempt to
    - i.** touch, shake, or hang from the line;
    - ii.** walk over the line;
    - iii.** damage the line (e.g. with sharp objects or open flames).
  - c.** While someone is on the longline, all other present slackliners are tasked with monitoring the surroundings. They should
    - i.** make unobservant passersby aware of the longline;
    - ii.** actively approach especially elderly or seemingly intoxicated persons;
    - iii.** watch out for and warn bicyclists;
    - iv.** remind people playing games (e.g. frisbee, badminton, soccer, etc.) of the potential danger of running into the longline. This may require approaching them multiple times;
    - v.** watch out for dogs. Dogs can easily miss the longline when engaged in playful activities or be startled by the “hovering” slackliner. Talk to dog owners about potential hazards;
    - vi.** watch out for children. Playing children are frequently distracted or underestimate hazards. However, they need to stay clear of the longline at all times. Inattentive parents/guardians need to be approached.
  - d.** Depending on the situation, it can be useful to have one or two other people accompany the slackliner laterally along the way.
  - e.** Spots that can cause distractions to road traffic by looking at the longliner should be avoided to reduce the potential of rear-end collisions.

### 11. When using remote locations:

- a.** Contact farmers, land owners or managers proactively. If the person to contact is unknown, try asking people living in the area or farmers on adjacent fields.
- b.** Always minimize the impact your activities have on the land:
  - i.** Do not step on high grass;
  - ii.** Avoid farmed fields;
  - iii.** Be mindful of access paths or other tracks (right of way).

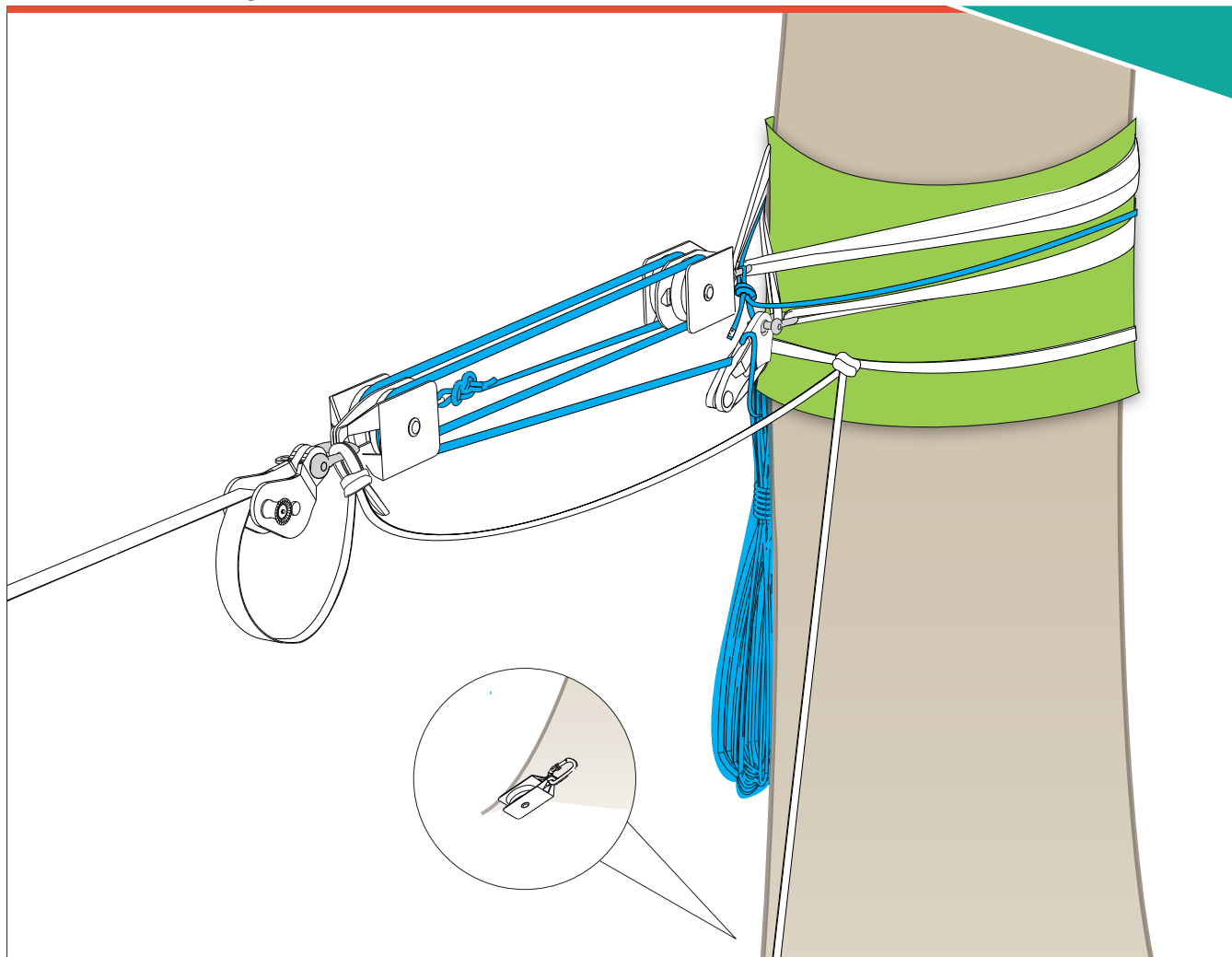
### 12. If you plan to **use the same spot on a regular basis**, the owner or manager of the space needs to be contacted and, if necessary, availability coordinated with other users.

- a.** Sensitizing owners/managers of certain spaces for their use as a longline spot takes time and should be a continuing concern.
- b.** Face to face meetings with owners, managers, as well as other users have the best chance to solve any problems that may occur. Exchange contact information for a continuous dialogue.
- c.** It can be helpful if a legally recognized group of people (association, sports club) supports a request/cause. Such groups can usually elicit and maintain more trust with the other party, as they can usually provide a long-term point of contact.
- d.** Meetings with owners, managers, or other users should be well prepared and you should strive to maintain a friendly and open atmosphere. It can also help to bring one or more persons that are not immediately involved in the issue in question. As a neutral party, they can moderate the meeting and take notes, if necessary.

## Physical and Psychological Prerequisites

### 13. During longlining, your body can be subject to abrupt strains. Besides a good **psycho-physical constitution**, it is recommended to warm up before first mounting the longline.

- a.** Tensioning your slackline manually can serve as a first warm up.
- b.** Know your own abilities and limits. Slowly approach greater lengths (endurance, concentration) and heights (mounting and dismounting).
- c.** Practice controlled dismounting, jumping off and falling. The following slackline skills are important when you begin to longline.
  - i.** Swinging onto the line when hanging off of it below.
  - ii.** Sitting start (e.g. the “Chongo” mount, or “Knee-drop mount”, etc.) as well as sitting back down onto the line.
  - iii.** Be able to effortlessly walk back and forth on a 30 m (90 ft) line.
- d.** Consider these options to prepare for your first longline:
  - i.** Walking back and forth on a slackline without taking a break;
  - ii.** Rig the anchors of line lengths you are already comfortable walking higher;
  - iii.** Reduce the pre-tension of line lengths you are already comfortable walking (Rodeolines);
  - iv.** Try walking a few steps with your eyes closed;
  - v.** Try walking several steps with locked or hanging arms.



*Fig. 5: A typical longline system tensioning side and appropriate backups. A 5:1 base pulley system is used for tensioning and detensioning and consists of two double pulleys and a brake. The brake here is attached to a separate anchoring sling. A webblock connects the pulleys to the slackline. All connectors are shackles. These are also used to backup the system with the remaining rope or webbing. It is important to avoid loading the backups during regular use. The multiplier (inset) is removed from the system after tensioning is complete.*

## **Requirements for Materials and Rigging**

- 14.** Always make sure to **bring appropriate equipment** for the desired location and **allow sufficient time** for setting up the line.
- 15.** Check your equipment each time before rigging. Make sure to appropriately store your webbing and equipment. Keep it away from acids (e.g. car batteries, cleaning supplies), dangerous fumes (e.g. fuel in a garage), as well as direct sunlight (UV exposure). Thoroughly clean your slackline when it was in contact with salt water.
- 16.** You need to know the expected loads on your entire system as well as each individual component. Familiarize yourself with relevant terms to judge component suitability: **breaking strength, working load limit, as well as safety factors**. Know these figures for all components in your longline system.



- a.** Slowly approach higher tensions in your longline system across sessions.
- b.** Longlines do not necessarily require high tensions. Given suitable terrain, long slacklines can be rigged at very low tensions.
- c.** In contrast to climbing, longline systems rely on **industrial-grade** materials and equipment (e.g. industrial round slings, shackles, etc.) You should not exceed the **working load limits (WLL)** stated in the materials. To this end, you need to be able to estimate the effective forces in your system.



Fig. 6: A clean longline static-side anchor on a tree.

- 17.** Choose appropriate trees as anchors. The **tree's diameter at anchoring height** should exceed 30 cm (12", approx. 100 cm or 40" circumference) for longlines at static loads of 8 kN or lower. A diameter of 40 cm (16", approx. 130 cm or 50" circumference) is advised for static loads beyond 8 kN.
  - a.** Be aware of dead branches in trees and do not stand directly underneath them.
  - b.** Branches that are in the way can be temporarily pulled aside using slings or rope. Never cut or tear off anything from trees.
  - c.** To attach an anchoring sling above your own body height, we recommend having a second person sit on your shoulders. Be mindful of damaging the tree. Generally refrain from climbing trees unless you have learned the appropriate techniques and safety aspects.
  - d.** Additional information on tree protection can be found [here](#).
- 18.** The width of the anchoring material (tree sling, industrial sling, etc.) should be at least 5 cm (2"), 10 cm (4") or more are recommended. Fanning the sling out or doubling it up further distributes pressure across the tree's trunk surface.
  - a.** If your longline exceeds 8 kN of static tension, the anchoring slings should be at least 10 cm (4") wide.
- 19.** Choose **anchoring materials** to be significantly stronger than the webbing. The webbing should be the weakest component in the system.
  - a.** Longline setups should use industrial round slings and shackles with a working load limit of at least 10 kN (1t).
  - b.** Slacklines should never be rigged on aluminum carabiners. Constant fatigue stress causes micro fractures to occur and extend which will eventually lead to the carabiner failing. Steel is less susceptible to fatigue stress. Weakened aluminium carabiners can break even under the lightest loads (also see [here](#))! Never use carabiners that have been part of a slackline setup for climbing!

- c. Steel carabiners are also not recommended in the main load path of longlines, as they will continuously deform under constant but cycling loads and will thus eventually break due to fatigue. They should also not be subject to tri-loading or used with wide slings. Shackles and Quicklinks are less susceptible to these failure modes.

**20.** Load peaks occur during tensioning. Therefore, you should backup metal parts and tensioning equipment by tying them off with rope or webbing tails (cf. Fig. 6) on both ends **after hand-tensioning**.

- a. Tie off the tail end of the webbing coming out of the weblock to the tree. A bowline is a suitable knot for this purpose.
  - i. Make sure that the tied-off tail can not become loaded, as it may facilitate disengagement of the weblock.
- b. To minimize hazards, keep uninvolved people and passersby out from under the slackline and behind the tensioning system.
- c. Be mindful of the paths which parts of a failing tensioning system would take and avoid standing in them. During tensioning, this means to pull slightly off towards the side.

**21.** **Keep an eye on your gear** and **repeatedly re-evaluate the safety** of your system.

- a. Double check the entire longline system after applying light tension (hand tension).
- b. Pay special attention to shackles and Quicklinks. They need to be **fully closed**. When using such connectors, make sure to fully open and fully close them each time. If you get distracted while opening a shackle half-way, it may not be obvious that it is not closed. Making the safety state of a piece of equipment obvious is a good preventive practice. They need to be double-checked repeatedly, as they can undo themselves in loaded and unloaded states due to vibrations. Shackle keys or wrenches are recommended, in particular for permanent connections.

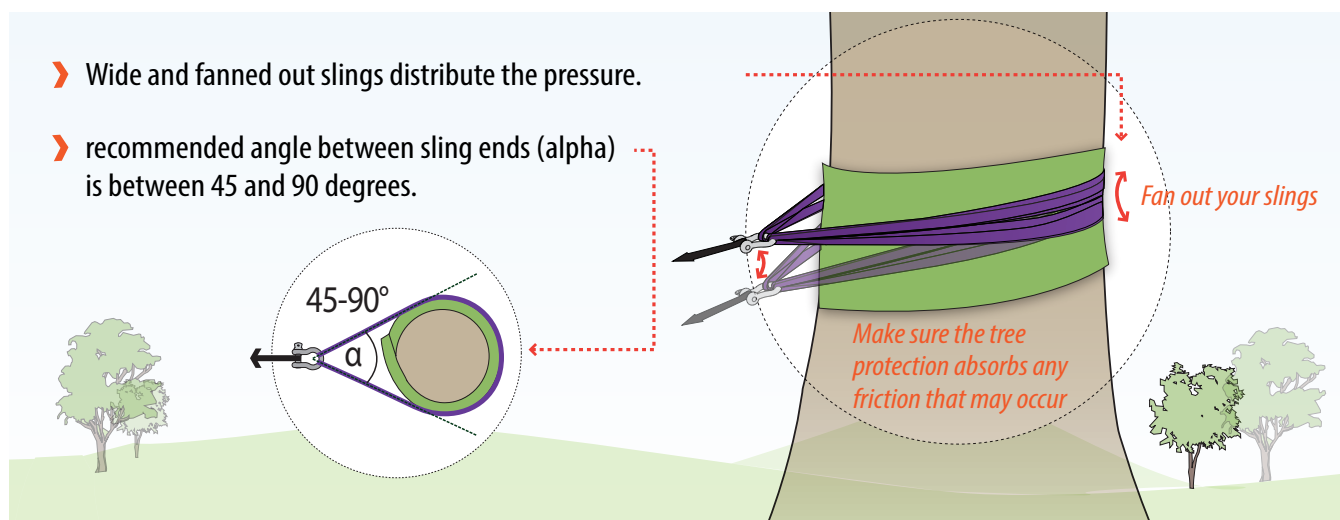


Fig. 7: Wide and fanned out slings distribute pressure across the tree's surface. The recommended angle between sling ends (alpha) is between 45 and 90 degrees. A girth hitch is recommended for slacklines with less than 2 kN base tension.

- 22.** When releasing tension from your longline, make sure to
- a.** keep the area around and under the slackline clear of people;
  - b.** undo any backups before starting to detension;
  - c.** if your longline was set up at higher tensions, use additional breaking mechanisms, such as a carabiner with a munter hitch, to further reduce the load on the free end of the rope;
  - d.** arrange pulley rope and webbing tails in a manner that prevents you from getting caught in them if explosive detensioning occurred.



*Fig. 8: You need to apply for a permit to be allowed to slackline in this park. The possible slacklines have been defined in cooperation with the owner of the park. A written agreement records the rights and duties of both, the owners and managers of the land as well as the slackliners.*

## Bibliography:

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- [04] Kößler/Geyer 2011: Slackline – Handbuch für Freizeit, Schule und Verein. Pohl Verlag.
- [05] Volery/Rodenkirch 2012: Slacklines, Praxiswissen vom Profi zu Ausrüstung, Technik und Sicherheit, Bruckmann Verlag GmbH

Useful links and longline records

[www.slacklineinternational.org/resources/useful-links/](http://www.slacklineinternational.org/resources/useful-links/)

## Slackline Associations:

International Slackline Association, [www.slacklineinternational.org](http://www.slacklineinternational.org), [info@slacklineinternational.org](mailto:info@slacklineinternational.org)

Swiss Slackline Association, [www.swiss-slackline.ch](http://www.swiss-slackline.ch), [info@swiss-slackline.ch](mailto:info@swiss-slackline.ch)

German Slackline Association, [www.deutscherslacklineverband.org](http://www.deutscherslacklineverband.org), [slacklineverband@posteo.de](mailto:slacklineverband@posteo.de)

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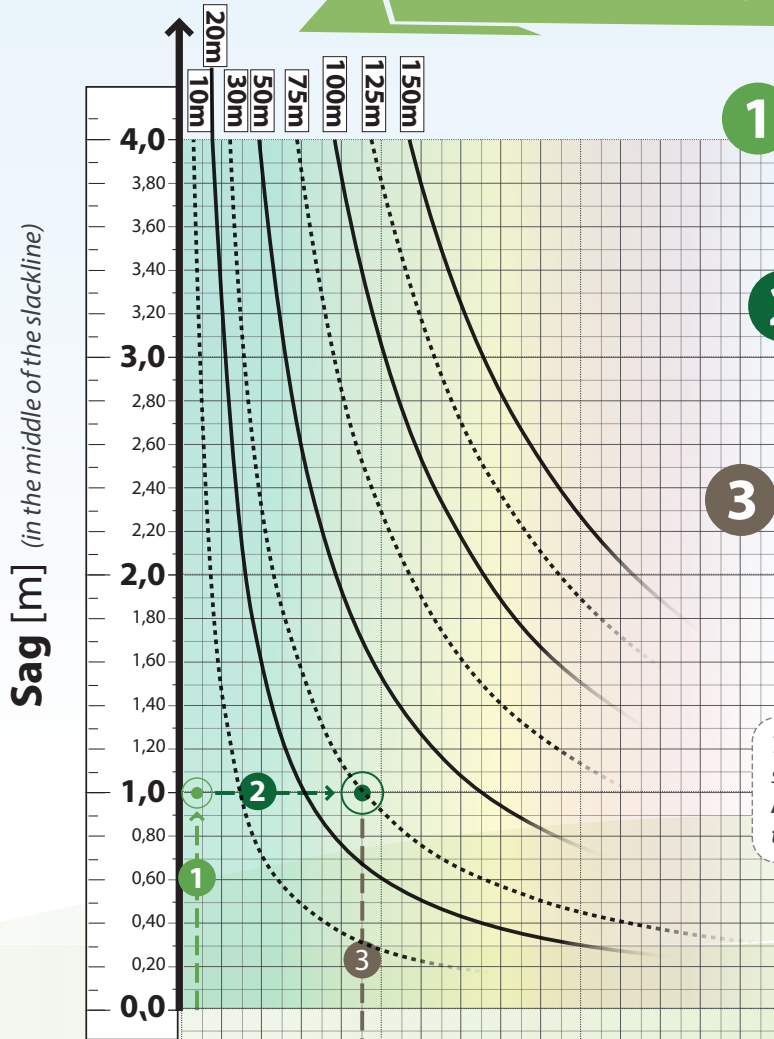
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The comprehension of the subject and the technical aspects can never be codified in a rigid set of rules. This documents aims to illustrate recommendable practices and procedures, which can be employed by the targeted user group. Considering the recommendations discussed in this document as rules would be inappropriate and would make practicing this sport almost completely impossible.

Creating a technical standard or binding rules for the sport always has to be mindful of the real/experienced standard (in the community). Due to the exaggerated nature of these recommendations such rules may not/cannot be extracted from the recommendations in this document.

# » How do I estimate the loads in my slackline system? «

## A tutorial and example



**1** Measure or approximate the sag in the middle of the slackline by sitting on it.

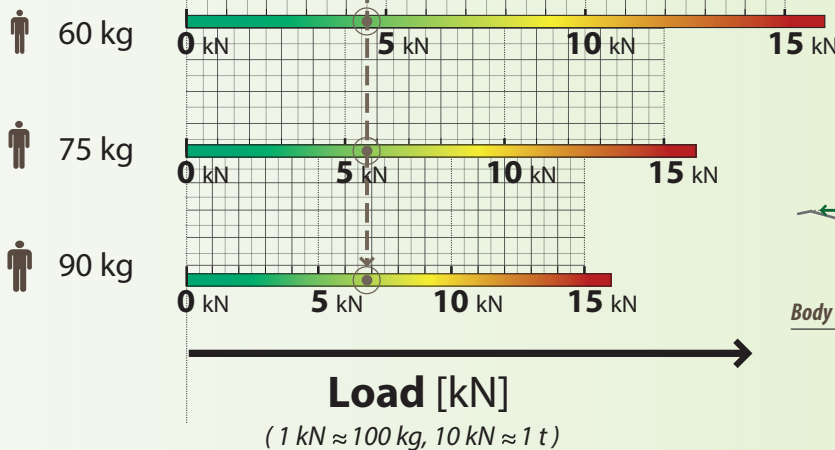


**2** Draw a horizontal line in the diagram to the line that represents the length of your slackline.

**3** At the point of intersection go straight down and find the load in kN according to your body weight (60, 75, 90kg). (1 kN ≈ 100 kg)

**⚠ WARNING:**

This method gives you the load when someone is sitting in the middle of the line. Actual loads can be 20-50% higher during tensioning, jumping or bouncing!



Alternatively, you can calculate the load with this formula:



$$\frac{\text{Body weight [kg]} \times \text{Length [m]}}{\text{Sag [m]} \times 4} \approx \text{Load in system [kg]}$$

Appendix 1: A guide to determining the load in a longline system.

