

# MAY THE DOWNFORCE BE WITH YOU

....use the Downforce....use the Downforce.....use the Downforce.....

'Downforce' is as vital to your traction control in windsurfing as it is to Formula One racing cars. It's the downward pressure that keeps the board flat on the water, even when you're stood near the tail. The best way to create Downforce is by pulling down into the boom, taking some of your weight off your feet and pushing it down onto the mast foot instead. The old school called this Mast Foot Pressure or MFP.

Downforce happens quite naturally when you're hooked in, but can be consciously applied to help in many tricky situations like:

- Carve gybing,
- Sailing over powered,
- Getting into the footstraps,
- Tacking and freestyling,
- Balancing when beginning,
- Early planing,
- Wave riding,
- Sailing upwind

"To master Downforce you must concentrate young Tailwalker, on pulling downwards into the boom."



Swinging from the harness with the mast upright; much of my weight is pulling down on to the boom.



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There are three other methods of creating Downforce, but they are less relevant, so they're merely going to get a mention:

1. Standing on the middle of the board (instead of on the tail)
2. Tipping the rig forwards (which naturally brings your weight more on to your front foot (closer to the middle of the board))
3. Powering up the sail (by pulling on the throttle / sheeting in)



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**Pic 1.** Swinging like a monkey from the boom is especially good for handling big power surges, like exiting carve gybes or getting into the footstraps.

**Footstrap Tips:** With so much of your weight hanging off the boom, it's easier to move your feet towards the straps. Plus the board won't swerve around as much because the majority of your weight will be on the mast foot, right over the centreline.

**Pic 2.** Beginners Tip: In more sedate conditions, simply pushing down into the boom with straight arms is effective and relatively relaxing.

**Pic 3.** However if your arms do bend, it's vital the elbows point downwards, creating Downforce.

**Pic 4.** Rigging Tips: The front end of your boom should be as tight as possible on the mast (it's impossible to crush a mast with a clamp-on boom).



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**Pic 5.** Otherwise when you apply Downforce you just bend the boom down, like having a broken Zimmer frame.

**Pic 6.** It needs to be absolutely rock solid. This single tip has a surprisingly large effect on everything from waterstarting to wave riding.



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**Overpowered Tips:** In overpowered conditions, losing control of the board is what actually throws you off.

In strong winds, rather than trying to battle with the rig (by leaning out for leverage), battle with the board instead, (applying stacks of Downforce). This is a battle you can win.

Although my arms are bending in this photo, there's no power going through them at all. My arms are bent because I've pulled all the heavy parts of my body (head and torso) over the harness to create enough Downforce to hold the board on the water.

**Battle with the Board:** Gently sheet out (yes, sheet out) so there's minimum power in the sail, but pull down into the boom with your harness by pointing your elbows down, bending your knees and pushing your ass down and out to create Downforce.

Spreading your knees wide apart, (especially the back knee moving backwards over the tail) is an excellent tip. Don't be proud, spread 'em! (Try it now wherever you're sitting.) Wide knees give you good control over the board and gets your weight lower. Likewise, moving your hands further apart will also improve rig control when overpowered.

Using this technique to keep the board under control, you can handle almost any size of sail (hence the reason why top sailors can carry huge rigs with ease).

**Battle with the Rig:** Forget it, you haven't got a chance! Leaning your shoulders out *can* increase the power of the sail and *will* push the board more sideways, instead of downwards, ruining control. Strange but true...

Some of you will spot this as being contrary to the old school tuition, when you were taught to lean out for leverage and 'if in doubt, don't sheet out!' Well, that bravado has long passed. For at least a decade just sheeting out and crouching down low has been a more efficient way of controlling your kit. This is partly because sails have got flatter, so that when you sheet out they do actually lose power. Another reason is that for the last fifteen years the mast foot has got closer and closer to your front foot, making board control easier and easier.

It is critical not to use the strength in your arms as you bend them. Hold this magazine in front of you with straight arms, keep it there and move closer to it by doing a sit-up. Notice how your arms are bending? Keep the elbows pointing down. Do the same thing next time you're overpowered and remember: weight, not strength.

**Upwind Tips:** To crank upwind, you need stacks of Downforce for two main reasons:

- Sailing upwind is the slowest point of sail, so you need downforce to keep you planning.
- Sailing upwind also means sailing into the chop, so you need Downforce to keep the board under control.

Notice not only how low I am in the right hand picture, but also leaning forwards. Lean so far forwards and hang down so low that your harness digs into your front side so much it hurts (lower ribs with waist harness and front hip with a seat harness). The pain will indicate you're creating stacks of Downforce.

### Overhand or Underhand Grip?

Overhand grip naturally promotes Downforce, whereas underhand grip tends to lift upwards. That's why when you're learning to jump you often use underhand grip (to lift up), but once you've mastered jumping you revert back to overhand grip (to keep control).

Experts use overhand grip about 95% of the time. The rare occasions they don't use it is when they're totally overpowered and their body is so close to the boom that underhand grip is more comfortable, or sometimes during back loops where a huge amount of lift is required.

Entering any transition needs overhand grip to promote Downforce and enable a smooth Boomshaka.

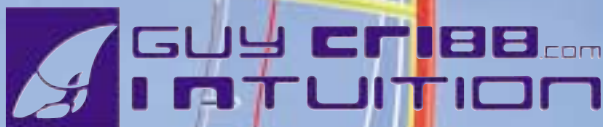
Overhand grip creates a longer reach, allowing the rig to be further away from you for power.

Underhand grip uses a stronger muscle group, which may lead to you pulling too hard on your front hand.

So, in a nutshell, use overhand grip 95% of the time on your front-hand and 100% of the time on your backhand.

*"He's more machine now than man, twisted and evil."*





# HOOK WARS

**Pics 1&2:** The seat harness naturally creates more Downforce than the waist harness, (note the angle of the harness lines pointing down more with the seat harness - pic 2). However, a waist harness is still good for creating Downforce, and a whole lot more.

**Pic 3:** "I can feel the Darkside is near." Look at the angle of my harness lines in this picture - they're almost horizontal, indicating a total lack of Downforce. See how the board is beginning to lose control? I should be crouching lower.



**Questions Answered.**

**"Should I use a waist or a seat harness?"**  
 "Use a waist harness."

**"I can't get used to my new waist harness, so I always keep my old seat harness in the boot of my car."**  
 "Young Parowan, you have much to learn. In life when you make changes, they feel different and therefore feel worse at first. But persevere and you will find enlightenment. Ditch the old seat one in the bin."

**"Do I need to change my stance if I change to a waist harness from my seat harness?"**  
 "No, put your boom up two inches and get on with it."

**"Will a higher boom help me?"**  
 "Yes, a higher boom naturally suspends your weight more. Imagine if your boom was so high you had to hang from it... That would be using the Downforce! High booms help early planing."

**"What if I was sailing really overpowered in nasty chop?"**  
 "In rough chop (strong winds), so long as you're using the Downforce through your harness, you can lower the boom to bend your legs more, creating better suspension over the chop. But expect your thigh muscles to burn! A small sacrifice to overcome the Darkside."

**"Wise words, but is it harder to hook in with a higher boom?"**  
 "Not with a higher hook. If you're having problems, move your harness lines back a bit and make them longer."

**"I thought I had to make my lines shorter with a waist harness?"**  
 "Look at these photos of young Tailwalker windsurfing. You can see he's wearing two harnesses, the pratt. The distance from both those hooks to the boom is the same. So no, you don't use shorter lines with a waist harness."



**Waist Harness Pro's.**

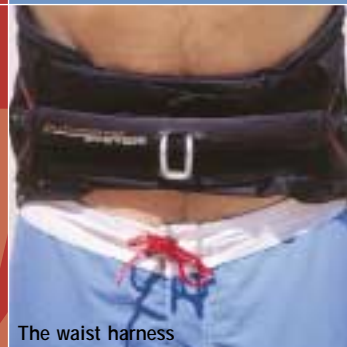
- Easier to hook in and out of for beginners and experts. (Which is why wave sailors and freestylers prefer them)
- Recent harness innovations mean they don't 'ride up' anymore; (they used to end up wedged under your armpits!).
- Because they don't ride up, you can sink low in them to create Downforce. • Cooler looking and more flattering. • Better fit for women. • Easier to swim and waterstart with. • Better back support. • Warmer. • Good protection. • Easier to put on. • All the top sailors in the world use them and all the test teams developing kit use them in the R&D, therefore naturally developing rigs slightly more suitable for the higher hook.

**Seat Harness Pro's**

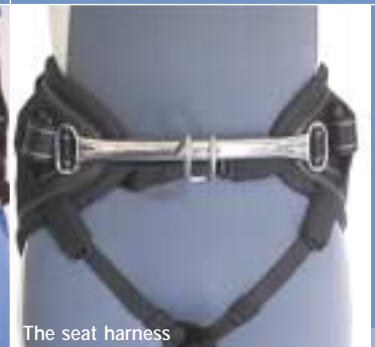
- Naturally increases downforce, which is why many racers still wear one to keep control, due to sailing predominantly overpowered.
- Good for a bit of S&M bondage, (which is another reason why many racers still wear them....)

**W**

*"May the Downforce be with you!"*



The waist harness



The seat harness

# FEEL THE DOWNFORCE, FREESTYLIN'

Whether your tacking, gybing or freestylin', you're making a windsurfing transition, and all transitions are essentially made up of the same vital ingredients; the Twist (to move your feet), Boomshaka (to flip a rig), the Look (to spin around) and Downforce (to maintain balance and control).  
 Using Downforce will crush the evil Darkside and enable you to get the weight off your feet, so that you can move swiftly around the board. Furthermore, in any situation when you're not hooked in, it's vital to keep the downforce on to keep the board planing. This is achieved by physically pulling down into the boom.



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*May the Downforce be with you...*

Pic 1: When you're not hooked in

Pic 2: Sailing tail first (same as sailing without a fin)

Pic 3: Stepping round the front of a tack

Pic 4: A freestyle trick

Pic 5: Entering a tack

Pic 6: Entering a carve gybe

Pic 7: Bottom turning on a heavy Ho'okipa wave...

Pic 8: ...or in light side-onshore Barbados

**INTuition** by Guy Cribb  
 All pics by Shawna Cropas  
 Cribby and Shawna run windsurfing tuition holidays all over the universe.  
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**Pics 9-12:** Check out this sequence of launching off flat water into a Vulcan. An unbelievable amount of Downforce is needed to literally 'spring load' the board in the first two shots, then the front elbow is lifted to release the Downforce for take-off, coinciding with lifting the board with my legs.

**Pics 13 & 14 Carve Gybe Tips:** As you enter a carve gybe, pull down with all your strength through your front hand. This keeps the board under control. When you do a Boomshaka, stay low to keep the Downforce on.



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**Pics 15 & 16 Wave Riding Tips:** In side-onshore winds, at the end of your bottom turn, you sometimes feel you're still no where near going back up the face. If you release the Downforce and try to throw the board skywards with your legs, the board will come back down underneath you when you hit the critical section.