

POWER CIRCLES

A tool for describing the microstructures within the tensegrity concept when applying it to a canoeing model is the Power Circle. A Power Circle is the connection of compression points through tension lines. Imre Kemecey has for many years been coaching a five Power circle concept of paddling technique to help athletes learn to apply power efficiently for the smooth run of the boat at high speeds. Tensegrity comes into play when the Power Circles balance each other to create an overall “Wishbone” structure (see later).

Power Circle 1

Power Circle 1 focuses on the pulling side of the stroke.

The power circle is initiated from the pulling side foot compressing against the footrest, and the resulting tension directed toward the stroke-side hip.

The stroke-side hip compresses the seat, and the resulting tension coupled with the tension from the footrest moves up to the stroke-side shoulder. It is important that the shoulder is 'Locked' into the stroke, because this compression point acts as a conduit for the tension to the stroke-side hand.

The lower hand pulls against the paddle. The tension from the hand coupled with the lower body tension and pressure on the footrest, act to propel the boat forward.

The circle becomes complete when the tension from the stroke-side hand to paddle is transferred back to the foot pressing on the footrest.

Power Circle 2

Power Circle 2 focuses on the upper body with the connection of the shoulders and arms with the paddle.

The lower hand initiates the compression against the paddle and the resulting tension is transferred through the arm to the stroke-side shoulder. As this shoulder moves backwards, it is important that the opposite shoulder moves equally forwards.

Both shoulders act as compression points and conduits for transferring the tension from the lower hand to the upper hand. The shoulders must act synchronously to effectively transfer the tension.

The upper hand creates a compression point against the paddle and the resulting tension is transferred to the stroke-side hand to complete the circle.

Power Circle 3

Power Circle 3 focuses on the lower body.

The power circle is initiated from the compression of the foot against the footrest. The resulting tension moves toward the stroke-side hip. Again, the hip is compressing with the seat to create additional tension.

The combined tension link to the opposite hip. The opposite hip motion is the key to this Power Circle because the opposite hip presses sideways against the boat on the opposite side to the stroke to counteract the turning effect of the stroke, helping the straight run of the boat.

To complete the circle, the resulting tension from the hip compression transfers back to the stroke-side foot.

Power Circle 4

Power Circle 4 focuses on the connection from the pulling side blade to the opposite side hip.

The blade's compression against the water initiates tension towards the stroke-side shoulder.

The compression in the stroke-side shoulder acts as a conduit for transferring the tension to the opposite hip.

The opposite hip, utilizing the same concepts described for Power Circle 3, compresses the opposite side of the boat, opposite to the stroke side.

The resulting tension from the opposite hip is transferred back to the pivot point of the blade in the water to complete the Power Circle.

Power Circle 5

Power Circle 5 focuses on the connection between the pushing side upper body and stroke-side hip.

The compression of the stroke-side foot against the footrest initiates the tension towards the stroke-side hip.

The stroke-side hip compresses against the seat, and the combined tension from the foot and the hip are transferred to the opposite pushing side shoulder.

The pushing shoulder and arm compress the hand against the paddle, and the resulting tension is transferred back to the foot to complete the circle.

The Wishbone

The "wishbone" is the culmination and balance of all the Power Circles' tensions working together.

The Wishbone structure originates from the pulling side hip, up to a pivot point at the center of the athlete's body – at collarbone height – back down to the opposite side hip. The entire stroke rotates around the pivot point, which is supported by the co-ordination of both hips. The pivot point is stable and does

not rock from side to side or back and forth. For maximum efficiency the pivot point is static supported by the dynamic interaction and counterbalancing of the entire body.

The key of the Power Circles is the transfer of tension through the entire "circle". Each compression point can either:

augment the transfer of tension for the main compression – the forwards propulsion of the boat

block the transfer or tension through the body