

Aerodynamics 241 - Create Your Own Aero-Helmet

By Coach [Nitish Nag](#)

Everybody knows that professional teams and riders spend thousands of dollars on aerodynamic equipment for time trials and track events, and for wind tunnel testing time. This money is well spent for these riders, as aerodynamic resistance is the biggest limiter at speeds above 15 miles per hour (Burke 2003).

For the cyclist with only a road bike entering a time trial race, the options are limited. Clip-on bars save about 30 watts of power at 40kph (25 mph), and an aero-helmet can save about an additional 10 watts at 40 kph. (Cyclingnews 2008). But what happens when you are a broke college student or neo-pro living in the back of your van? That's when you take Poorman's Aerodynamics 241

Saving up for a pair of aero-bars is the first step to modifying your road bike turned-time-trial weapon. Getting a proper aerodynamic fit with elbows tucked, back low and optimal power output is the next step with your aero-bars. After this, we can start to get creative...with cereal boxes.

Making a time trial helmet with your cereal box is a no-brainer if your pride in your result is more important to you than your pride in your look. Take a look at the pictures below and create your own aero-helmet. The really cool thing about this procedure is that you can customize your helmet to your current road helmet, your back profile, and shoulder profile. Be sure to measure twice, cut once.



These are the supplies you will need.

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Cut your box into 4 panels.



Make two of these side pieces with opposite sides in mind to keep color coordination.



Roll the cardboard to make a smooth, rounded surface.

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Cut this piece for the top.



Connect the pieces with masking tape. When the final product is finished, use duct tape to make the connections stronger.



Cut the back to follow your back and shoulder profile.

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Fill in the bottom section. Make sure the end is curved so that it fits around your neck.



View of the bottom of your helmet.

Attach ear pieces.



Now you just need to tape it to your helmet and saran wrap the front of the helmet smoothly to connect with the cardboard teardrop. This will make the whole front aero too. Add sponsor stickers and race!