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I have been involved in a debate for several months with a couple of shooters about shot strings and whether they actually exist. Is it an advantage to use a really tight choked gun to get a longer shot string working for me?

Tim Jones, Ascot QLD

Great question Tim and one that will always raise much debate. It's a topic that I have a plenty of discussion about.

Shot strings certainly exist. They are caused by the air reacting against the shot after it has left the barrel. This causes some of the shot pellets to move forward faster than others thus causing a stringing effect. In essence some of the shot arrives at the target before the rest.

The fact that causes arguments on shooting ranges all over the world is this. If two identical shot shells are used on two different barrels the tighter choked barrel will produce SHORTER shot strings than a more open choked barrel. For years I actually thought the opposite. I always assumed the advantage of shooting tighter chokes on distance targets was the myth of the longer 'cone' type effect that these chokes were giving me. What causes shot strings on tighter chokes to be shorter is the fact that as the wad cup is squeezed through a tighter choked barrel the leading pellets in the shot column act as a type of wind shield for the pellets in the rear of the column. The tighter choke thus keeps the shot column together for longer than a more open choke. The open choke allows the pellets to separate from each other quicker thus less pellets are getting protected from each other therefore they begin to string faster.

Now that I have told you all this technical data what should you do with it? First of all understand that long shot strings in most cases will act as your enemy, not a friend. Deformed or poor shot is the biggest reason for long shot strings as they are more susceptible to air resistance. Improve your scores by improving the hardness and roundness of your shot. Anything that will benefit your shot column leaving the barrel without large percentages of erratically behaving shot will improve the patterning of your gun with any choke size. I have to qualify the above comment as I mentioned in *most* cases a long shot string will damage your effective pattern. In events like American Skeet where shots are taken at very close ranges and smaller number 9 shot is used, there are plenty of compelling arguments why a longer shot string can be more effective as the holes in the cone effect of the string are filled with the extra shot that a number 9 provides and also because the shots are taken at such small distances the patterns do not have enough time to be greatly damaged.

On topics like this where fact and fiction are hard to separate I like to back up my views with some creditable sources. In the 1960's two great books were written by Edward Lowry, one of the leading Ballistics Technicians who worked for Winchester Western in the United States. The books titled *Exterior Ballistics of Small Arms Projectiles (1965)* and *Interior Ballistics (1968)* showed some extraordinary photographs of how shot strings behave when shot through Cylinder barrels and then Full choke barrels. The high speed photographs proved that after the shot had traveled just over 5.5 metres from the barrel the Cylinder choke already had a greater tail or

cone than a Full choke shot charge. This largely cleared up the debate that many had waged for over a century. An easier book to read as it is no where near as technical is *Shotgunning, The Art and Science (1977)* by another American, Bob Brister. Brister proves the existence of shot strings by getting his wife to tow a large trailer with very long pattern sheets attached to ply board on the back. She drives across in front of him at ninety degrees at different speeds and distances as he simply shoots a stationary shotgun at a target on the leading edge of the sheet and then measures the distance horizontally from the first to the last shot pellet on the pattern sheet. Interestingly in Brister's book he states there was little evidence of shot strings with high quality 7 ½ shot in 1 1/8 oz target loads, but quite long strings in soft shot duck loads.

Tim, suggest this idea to your wife to prove Brister's findings for yourself. If nothing else you will get an idea of how well your marriage is going!

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