3-D Effects with Energized Singles

by Amy Tyler

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I still remember my excitement when I started knitting with unplied singles. Sitting in a workshop with Rita Buchanan in 2003, my head practically exploded with ideas.

I had read Kathryn Alexander's 2002 article "Knitting with Singles," and I was ready to dive into the world of what she aptly called energized singles. These are singles that are not "balanced"; instead, they have active twist. That twist produces marvelous effects in knitted fabrics.

Kathryn took advantage of these effects by combining Z-spun singles with S-spun singles to get amazing textures. She also incorporated loads of colors, entrelac knitting techniques, I-cord, and triangular shaping to create eye-popping, fantastical projects. And she did it all while working primarily with stockinette stitch.

I have explored in a different direction, sticking with just Z-spun singles. To get structural and textural effects, I have used a variety of stitch patterns, some very basic, most very easy.

TWO-DIMENSIONAL EFFECTS

Early on, I explored the biasing—or zig and zag—effects that can result from working in stockinette stitch with energized singles. When you work an energized Z-spun singles in stockinette stitch, you get a resulting fabric that biases upward and to the right. If you turn the fabric over so that the "wrong" side, or purl side, shows (reverse stockinette), then you get a fabric that biases upward and to the left. If you knit a fabric that starts with stockinette and then is followed by reverse stockinette, you get a fabric that zigs to the right and then zags to the left.

For my earliest projects with energized singles, I exploited this zigzag effect by combining stockinette, reverse stockinette, and garter stitch in a series of six scarves ("A Study in Zig," *Spin Off*, Spring 2006).

Garter stitch does not show the biasing effect of stockinette and reverse stockinette. Think of garter stitch as one row of stockinette followed by one row of reverse stockinette. Each row actually biases, but the alternating direction of the rows cancels out the overall bias effect. For similar reasons, seed stitch also does not bias with energized singles.

Besides the stitch pattern, two other factors influence the biasing effect. One factor is needle size. The larger the needles, the greater the angle of bias, but also the looser the fabric. (If you have a slightly energized yarn and you do not want the bias to show up in your knitting, use smaller needles to knit at a tighter gauge.)

Another factor is the amount of twist you insert into your singles. The more twist, the greater the angle of bias. There is another effect, however: the more twist added, the stiffer the yarn. I do not enjoy knitting with highly twisted singles, so I go for a middle ground: enough twist in the singles so that if I plied the singles, they would make a "respectable" plied yarn.

THREE-DIMENSIONAL EFFECTS

Of the six scarves I designed for "A Study in Zig," all but one resulted in a flat fabric that showcased the biasing effect; in five of the scarves, I used stockinette and reverse

Each of the samples above is knitted from Z-spun singles into swatches of 32 stitches by 44 rows.
From top: Samples 1 and 4 knitted on US size 2 (2.75 mm) needles. Samples 2 and 5 knitted on US size 3 (3.25 mm). Samples 3 and 6 knitted on US size 5 (3.75 mm).

Tips for Knitting with Energized Yarns

- How nice that you do not need to wash or finish your singles before knitting! You can just knit right off the bobbin. I put my bobbin on a lazy kate and put the lazy kate on a table next to me. Sometimes I tension the bobbin to help control the willful singles; sometimes that is not necessary.
- Use a knitted or cable cast-on. I learned the hard way that using a long-tail cast-on with energized singles can be problematic.
- Weave in the cast-on tail after knitting a few rows; otherwise, it will untwist and drift apart.
- After weaving in the cast-on tail, it can be difficult to identify the right side of the fabric. Use a locking stitch marker (or safety pin) on the right side of the fabric to help keep track.
- You may need to knit more slowly and pay more attention to your knitting when using energized singles. (If I don't, I make more mistakes.)
- If you do make a mistake, take stitches out one at a time instead of ripping the stitches out.
- When you wash or block the finished knitting, do so lightly; do not stretch the fabric.

stockinette sequentially. But on one of the scarves, I knitted stockinette side by side with reverse stockinette. This one scarf did not lie flat; it was three-dimensional.

When stockinette is worked side by side with reverse stockinette, the opposing bias directions of the two sections push against each other to create hills and valleys. Combining square or rectangular areas of knit and purl stitches creates one kind of effect (Samples 10 and 12, opposite), while combining triangular areas creates another (Samples 7, 8, and 11), and adding bits of seed or garter stitch will create yet another (Sample 9).

Over the past few years, I have scoured my many stitch dictionaries for patterns that will produce a 3-D fabric when knitted with energized singles. Not all knit-purl stitch patterns produce an interesting effect. If the number of stitches in the knit section (stockinette) and the purl section (reverse stockinette) is not great enough, the knitted fabric does not produce the lovely hills and valleys. I did find a few, and I also created some new (to me) stitch patterns.

On page 71, you can see six different knit-purl stitch patterns worked with a balanced two-ply yarn. These patterns have their own charm. Pennant Pleating and Welt Waves even have a bit of three-dimensional effect with balanced yarns.

Compare the stitch patterns worked in balanced two-ply (the left swatch in each pair) and Z-spun singles (the right one in each pair). I tried to spin these singles to the same approximate thickness as the two-ply balanced yarn. Both yarns were spun from Romney wool roving and knitted with US size 2½ (3 mm) needles. The two-ply measures about 14 wraps per inch; the singles measures about 16.

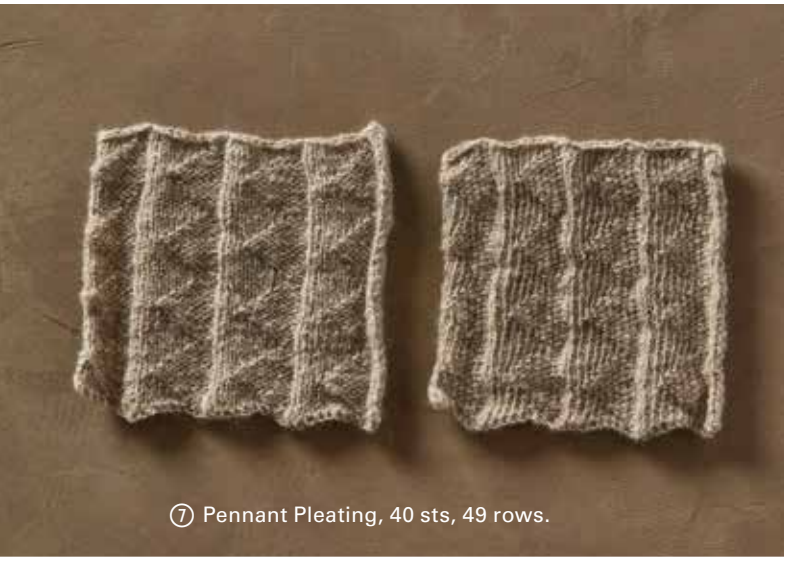
When you add energy to the knitting, interesting things happen! All of these knit-purl stitch patterns are pleasing when worked with a balanced yarn, but when worked with energized yarns, these simple knit-purl stitch patterns produce three-dimensional fabrics. The difference between the balanced swatches and the energized swatches is sometimes subtle (as in Pennant Pleating and Welt Waves) and sometimes more distinct (as in Two-Way Pennants and Cinder Blocks).

Just as with the two-dimensional biasing effect, needle size also influences the three-dimensional effect. However, the effect of needle size on the three-dimensional effect is the reverse of the effect on biasing: The larger the needle, the less three-dimensional effect the fabric has; the smaller the needle, the greater the effect (see Samples 4–6). There is a trade-off: as you use smaller needles, the knitting becomes more difficult and the resulting fabric becomes stiffer. I try to find the needle size that will give me a pleasing three-dimensional effect yet will yield a fabric with a nice hand.

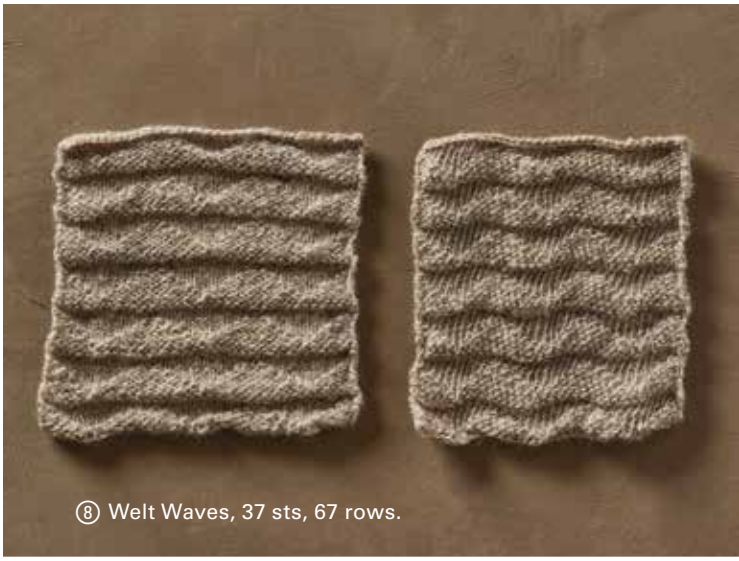
As for two-dimensional fabrics, the amount of twist in your singles will influence the three-dimensional effect, with more twist resulting in a more three-dimensional appearance. However, as I mentioned before, I find that too much twist makes the knitting experience less pleasant.

THERE IS MORE TO EXPLORE

Sometimes I take a shortcut: I add twist to balanced millspun yarn by respinning a yarn using my wheel (or



⑦ Pennant Pleating, 40 sts, 49 rows.

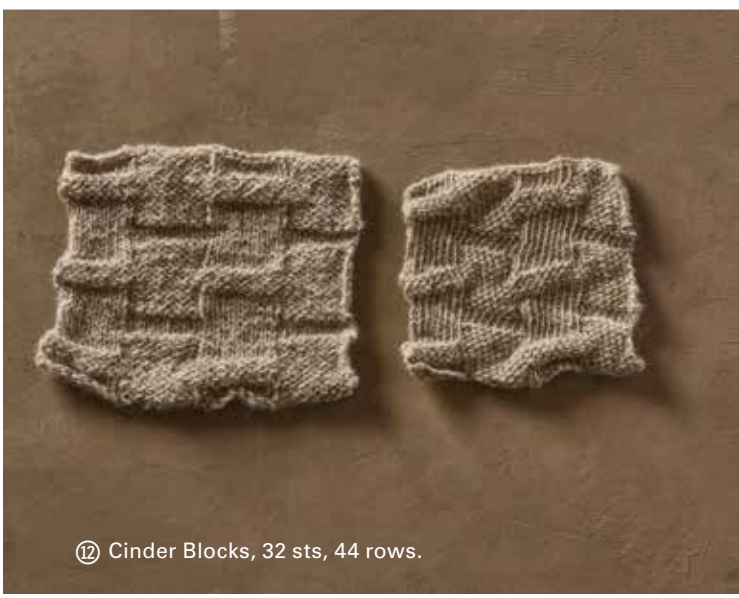


⑧ Welt Waves, 37 sts, 67 rows.

⑨ Checkerboard, 36 sts, 48 rows.

⑩ Box in Box, 36 sts, 54 rows.

⑪ Two-Way Pennants, 50 sts, 49 rows.



⑫ Cinder Blocks, 32 sts, 44 rows.

spindle), thus changing it from a balanced yarn to an energized yarn. The nice thing about this strategy is that there is no need to worry about variations in thickness. Most plied millspun yarns consist of Z-spun singles that were then S-plied. I typically add more Z-twist to such a yarn, making it softer rather than ropey.

I have used only Z-spun singles in my experiments. You may want to try combining Z-spun singles with S-spun singles; if so, Kathryn Alexander's 2002 article includes a great deal of useful information.

I have not yet systematically explored the influence of fiber choice on three-dimensional effects. I knitted some swatches with energized singles spun from Cormo wool combed top, expecting the elasticity of the Cormo to accentuate any three-dimensional effects. I was surprised to find that it did not; the resulting fabric was lovely, but flat. I got much better results from the Romney I ultimately chose. Now I have in front of me oodles of spinning and knitting to find out what effect fiber (and maybe even fiber preparation) has on three-dimensional effects. I can hardly wait!

RESOURCES

Alexander, Kathryn. "Knitting with Singles." *Spin Off*, Spring 2002, pp. 54–61.

———. "Swoopy Skirts." *Spin Off*, Winter 2008, pp. 60–65.

Tyler, Amy. "Ask a Spinning Teacher: Plying for Balance." *Spin Off*, Winter 2016, pp. 24–26.

———. "Stone and Fire Cowl." *Spin + Knit*, 2017, pp. 65, 68.

———. "A Study in Zig: Six Energized-Singles Scarves." *Spin Off*, Spring 2006, pp. 58–64.

Romney carded roving: Fiddle Knoll Farm, Skandia, Michigan, www.fiddleknollfarm.com.

Targhee combed top: Yarn Hollow, Grandville, Michigan, www.yarnhollow.com.

Amy Tyler spins and plays with both energized and balanced yarns. She shares her enthusiasm for spinning yarns in workshops around the country. You can find out more about her fiber work and teaching on her website and blog: www.stonesockfibers.com and www.stonesockblog.blogspot.com.

To explore three-dimensional effects in energized singles, spin and knit the Energized Cinder Blocks Cowl on page 74.

Charts to knit the three-dimensional stitch patterns shown on pages 69 and 71 are available at www.interweave.com.

