



HELIX KNITTING

BY LESLIE GONZALEZ

As with all articles in the Stitch Anatomy Series, the lesson discusses the stitch pattern in detail, any potential problems in working it, and tips for improving the appearance. For those interested, patterns for two pillows using the stitch pattern follow. The patterns outline the steps involved in designing with the stitch pattern. Also included is information for anyone who wants to try designing a similar pillow on their own using different yarns, a different pillow size or a variation of the pattern.

Helix knitting is an easy-to-work color technique to add to your knitting repertoire. It is referred to as barber pole knitting because it interweaves two or more colors in spirals. It is a type of intarsia that interlocks rounds of stripes, taking advantage of the intrinsic spiral created by working in the round. Unlike typical intarsia, the yarns are not twisted as the colors change.

Helix knitting is a technique specific to working in the round and cannot be worked in rows. One advantage of helix knitting is that it eliminates color jogs that typically occur when changing colors in the round. Swatch 1 shows



SWATCH 1 - COLOR JOG

a color jog. Typically the helix is worked in stockinette stitch, but accent purl stitches can be added and the helix can also be worked in several other stitch patterns with striking effect.

Materials

Yarn

Any yarn can be used. There must be at least two colors to create stripes. Colors should vary in value and intensity so they can be seen when placed beside one another. Novelty yarns can be used as an accent against the other yarns. Always swatch to be sure the yarns are compatible.

Needles

Both double pointed needles and circular needles can be used for helix knitting. Straight needles cannot be used. For small circumference projects both the magic loop method and working on two circular needles can be substituted for working on double pointed needles. Working on double pointed needles makes it easier to organize the colors as each needle can be assigned to a color group.

Stitch Markers

When working on circular needles with three or more colors, stitch markers are helpful for showing the separate sections. When working with two colors, use a stitch marker to mark the round start.

Yarn Management

Helix knitting requires at least two yarn sources be used. There are several methods to keep the yarns tidy. For two colors you can work from the original yarn sources, stopping every so often to remove any tangles.

Another choice is to use yarn bobbins which can make it easier to untangle the yarns. This is a better choice when working with more than two colors. Self-made yarn butterflies or small center pull balls can replace bobbins. Depending on the length of the work you can also allow one color to be worked with a long strand hanging.

Rotating the yarn balls as you change colors will also help keep tangling to a minimum.

Working the Helix

Keep in mind you will be working from several yarn sources. The yarn sources are worked in designated sections on the needles. There is always one less section than the number of yarn sources. Typically helix stripes are worked in stockinette stitch where each round is knitted. The more colors used the steeper the angle of the spiral will be.

Cast On

Choose a cast on that will support the pattern stitch to be worked. If the item will be a tube, the long tail cast on is a good choice for most situations.

Pieces can also be worked flat in a circle with the knitting radiating from a central point. For these projects choose a cast on that creates a pinhole. There are many methods, and one is described in the Lesson Patterns.

For flat pieces that are oval, or toe up socks, begin with a closed circular cast on such as a long tail tubular cast on for double knitting, or any of the popular cast ons for toe up socks, such as Judy's Magic Cast On. For flat ovals you will need to increase rapidly at the beginning and mid point to maintain a flat piece. For socks you will also need to increase to the foot size, but the progression of increases will be slower.

Working Simple Helix Stripes

Simple stripes are one round wide. The colors come from separate yarn sources and are grouped on the needles.

Since there is always one less group on the needles than yarn sources, working two colors will mean there will only be one group on the needles. Working three colors will mean there are two groups on the needles and so on.

Simple Alternating Helix Stripes Using Two Yarn Sources (Swatch 2)

If you have only two colors, then you are working from two sources and will have only one section. This makes the entire round the only section and you will need only one marker to mark the round start.

Begin by casting on the first color. The working yarn will be at the end of the cast on ready to connect to the first stitch cast on. But don't join yet. Drop that first color working yarn. Next work the second color over the first by beginning with the first stitch that was cast on. When you finish the row, both working yarns will be at the same end.

On the next round, join the work in the round by using the first color working yarn to work the first stitch cast on which now appears as the second color. Place a marker to mark the yarn join and color change. Work one round. Drop the working yarn and pick up the second color. Continue to work one round each of alternating colors. Take care not to twist the yarns otherwise an errant yarn will show to the right side where you changed color. Continue in this manner to the desired length.



SWATCH 2 - HELIX IN TWO COLORS

Simple Alternating Helix Stripes Using More Than Two Colors (Swatch 3)

Designate the sequence of the colors. Note the number of colors – and remember there will be one less color group on the needles. If you cannot get an even number when you divide to calculate the number of stitches in each group, make them as close as possible, they don't need to be exact.

There are a couple of ways to get started.

1. Divide the number of stitches you need to cast on by the number of colors to be used. Begin by casting on this number with Color 1, then the same number with Color 2, and continue until all colors have been cast on. If the number can't be divided evenly, the sections can vary by a few stitches. Take the last color cast on and join in the round by working over the stitches of the first color. When you get to the end of the first color, drop the color you are working with and pick up the color over which you worked. Work the next section in this color. Continue in this way until you have worked over the last color. When you get to the end of the round, you will find there is no yarn to pick up, so continue with yarn you are working with over the first section. The first and last sections now become one section, giving you one less section than number of yarns. Continue working, dropping, and picking up yarns until the piece is the correct size.

2. Divide total number of stitches by the number of colors to be worked minus one. Cast on the colors using the method for multiple colors described in #1. One color will not be cast on. Each color represents a section. Using the color not cast on, work over the first section.

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When you get to the end of the section, pick up the color from below and work the next section; continue in this manner to the end of the round. Join in the round by using the last color from the row below and working the first section again. Work across those stitches, and when you get to the end, drop the yarn you are using and pick up the working yarn of the color you just knit over. Continue to work by knitting each previous color over the next and dropping and picking up the yarns as you come to them. Working on double pointed needles allows you to keep the work more organized by assigning to each needle a set of stitches. At the end of each needle drop the color you are working with and pick up the new color to start the next needle's stitches.

To help you know when you are at the end of a group use stitch markers to delineate the areas. If you are working on double pointed needles, designate a group to each needle.



SWATCH 3 - HELIX IN THREE COLORS

Working Thicker Stripes

If you want to work thicker stripes of equal width, work two bobbins of each color in a row. This places two spirals of the same color next to each other, creating the illusion of thicker stripes. For even thicker stripes try three bobbins of each color.

A fabric with a single contrast stripe running through a thicker background stripe can be made by working several bobbins of the background color with one bobbin of the contrast color. Work each bobbin of the background sequentially, just as if you were

working different colors. Work the accent color as you come to it only until the next background yarn begins. See Lesson Pillow 2.

Working a Helix I-cord

The I-cord should be worked on double pointed needles. Cast on the desired number of stitches in the first color. This is usually 3-8 stitches, and anything more should be worked in the round as described above. Do not turn the work, but rather, slide the cast on stitches back to the right end. Knit across using the second color. Slide the stitches back to the right end so the right side of the work is facing. Either work with the first color again, if only two colors are to be used, or add the third color. Continue sliding the work back so that you are always working across the right side of the work, alternating the colors in the same order. After all the colors have been added, knot them together at the base of the cord. Be careful not to pull too tightly when changing colors, but also be careful not to leave a gap. When the desired length has been reached, cut all the yarns. Using the next yarn in the sequence and a tapestry needle, draw the yarn through all of the stitches and secure. See Lesson Pillow 1.

SPECIAL CONSIDERATIONS

Calculating Gauge

When calculating gauge, always work the gauge swatch in the round and use the helix patterning. Many knitters find their gauge is different in the round than in rows. Checking the gauge in the color pattern is important as changing yarns can affect both stitch and round gauges. There are two ways to work a gauge swatch for circular knitting but only one method works for helix knitting. You must work the swatch completely in the round and not use the method of sliding the work back to the start of the needle. Working in the round creates spirals. Sliding the work creates horizontal rows and could mean an inaccurate gauge measurement. To make a gauge swatch: cast on enough stitches to work approximately an eight-inch circumference on double pointed needles, a magic loop, or two circular needles. Work in the stitch pattern that you will be measuring for at least four inches, excluding the cast on stitches and the stitches on the needle. Bind off all stitches. Block the swatch. Once the swatch is dry, calculate the stitch and row gauge using the gauge worksheet provided. You can measure the stitches and rows by laying the piece flat with wrong sides together. There

GAUGE WORKSHEET

Determine Stitch Gauge

Width:
 $1/8 = .125$ $1/4 = .25$
 $3/8 = .375$ $1/2 = .50$
 $5/8 = .625$ $3/4 = .75$
 $7/8 = .875$

Number of stitches:
 (Don't include the selvedge stitches)

Divide the number of stitches by the width. This gives you the number of stitches per inch. **Do not round off the number.**

Number of stitches per inch:

Multiply the number of stitches per inch by 4 to get the number of stitches in four inches. Round the number up or down.

Number of stitches in 4 inches:

Repeat this procedure to determine the row gauge.

Determine Row/Round Gauge

Length:
 $1/8 = .125$ $1/4 = .25$
 $3/8 = .375$ $1/2 = .50$
 $5/8 = .625$ $3/4 = .75$
 $7/8 = .875$

Number of rows:
 (do not include the cast on or bind off edge)

Divide the number of rows/rounds by the length. This gives you the number of rows/rounds per inch. **Do not round off the number.**

Number of rows per inch:
 Multiply the number of rows by 4. Round this number up or down.

Number of rows in 4 inches:

If you are getting fewer stitches than the recommended gauge, try using a smaller needle size. If you are getting more stitches than the recommended gauge, try using a larger needle size.



VIDEO LINKS

Video lessons pertaining to these patterns are available online at www.TKGA.com/CastOn>About.

should be four inches of work to measure showing to the upside.

It is important that the swatch be blocked as this replicates the finished project's gauge. Use a blocking method appropriate for the fiber and stitch pattern.

Shaping – Decreases

Decreases should be worked the same as in plain circular knitting by using either left or right slanting decreases. Decreases should mirror when appropriate. For instance, if you are working a raglan in the round you will want to have left slanting decreases at one shoulder and right slanting decreases at the other shoulder both on the front and the back. Keep in mind the decrease shows on the row below the decrease row. The two stitches that combine will be in the color below.

Shaping – Increases

Take care to avoid increases that distort the striping. The lifted increase will distort the stripes as it pulls the stitch from the round below. Depending on the stitch pattern the bar increase, or knit into the front and back of a stitch, can be used. Be aware that this increase will leave a small bar that may or may not be noticeable in the work. The make one increase, which uses the strand from the round below, is often a good choice. It is always a good idea to swatch the increase you will be using to see how it affects the patterning.

Working Other Stitch Patterns

Ribbing is a stitch pattern in which all rounds are identical: the knits are knit and the purls are purled. The set up of the yarns is the same. It is important to cast on the correct multiple for the ribbing.

Stitch patterns which do not have identical rounds, such as seed and garter stitch, can also be worked using the helix technique but produce a less organized color look.

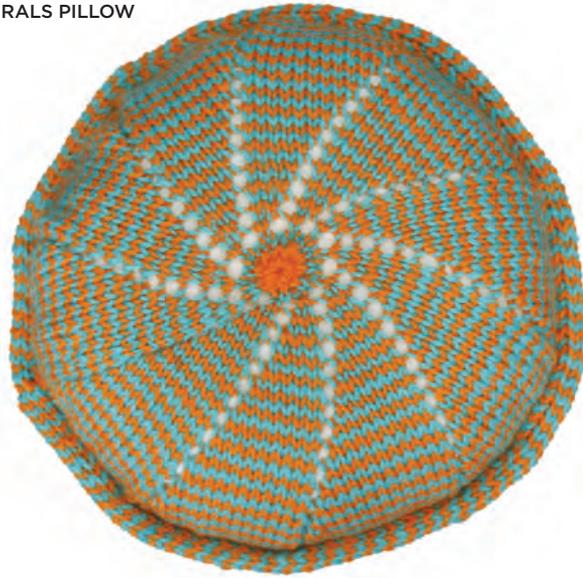
Alternating Helix Rounds With Solid Color Rounds

Single color sections can precede, follow, or be placed in between helix rounds. For the solid color section, work with a single strand of yarn until the desired length is reached. Then introduce the colors on the next round by working the set number of stitches in the progression desired as described above. To change back to a solid color, simply continue with the single yarn in the color desired, cutting the others as you work over them.

Purl Accent

Helixes can also be worked in a single color,

**PILLOW 1:
OPPOSING SPIRALS PILLOW
(FRONT)**



with one strand purling while the other strand or strands are knit. This creates a ridge. The purl accent can also be worked in color with one color being purled and the other color or colors being knit.

Binding Off

To bind off when working two colors, use whichever color is next in the sequence. For more than two colors, bind off using the color sequence.

Helix knitting can be as simple as alternating two colors or you can make your own unique statement by making a few simple adjustments. All in all it is a fun way to add color to your knitting.

LESSON PILLOWS

Special Techniques for Lesson Pillows

Both pillows are worked in the round and both require a circular cast on. Emily Ocher's Circular Cast On is a good pinhole cast on, but you can substitute any circular cast on if you prefer.

Emily Ocher's Circular Cast On

Form a small circle with the cast on yarn about the width of a few fingers on your left hand. The tail should hang down. The tail needs to be long enough to hold the number of stitches to be cast on. For this project the tail should be 6-8". The working yarn should be over the top of the fingers. *With the right hand, insert the crochet hook through the ring and yarn over the crochet hook with the working yarn. Draw through the ring. Yarn over the crochet hook

again and pull through the loop on the crochet hook. One stitch made. Rep from the * until the desired number of stitches have been cast on. There will be a circle below the stitches with the tail free. Evenly distribute the stitches to double pointed needles. After a few rounds have been worked, pull the tail and the center will shut to a pinhole.

The first pillow requires a cast on for the attached I-cord.

Cable Cast On for helix I-cord bind off
*Insert the right needle between the first and second stitch on the left needle. Wrap as if to knit and pull through between the two stitches. Place the loop just made onto the left needle knitwise. Continue until the desired number of stitches have been cast on.

LESSON PILLOW 1 OPPOSING SPIRALS PILLOW BY LESLIE GONZALEZ



MEDIUM

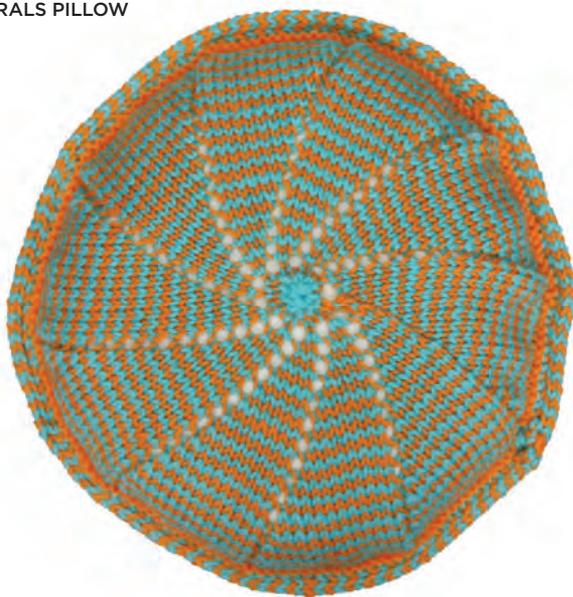


INTERMEDIATE

This fun pillow is easy and fast to work up. It is worked in two colors using helix striping. It is a flat circle. The yarnover increases keep the stitches from distorting as the circle grows. The yarnovers are worked in a spiral opposite of the helix.

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PILLOW 1:
OPPOSING SPIRALS PILLOW
(BACK)



continued from page 61

Finished Measurements:
10" Diameter.

Materials

Universal Yarn DELUXE WORSTED (220yds,100g, 100% Wool): 1 skein each #12297 Sherbert (Color A), and #71662 Turquoise (Color B)
Size 7 (4.5mm) needles, set of 5 dpn's and two 16" circular needles
Crochet hook size E (3.5mm)
1 Stitch marker
Tapestry needle
10" Pillow form

Gauge:

20 sts & 32 rnds = 4"/10cm. To save time, take time to check gauge.

TECHNICAL TIP – Preparation – Measuring Gauge: You will want to make a gauge swatch to be sure you are getting the correct drape for your yarn and pillow. Because the pillow radiates from a central point into a circle, you can continue the pattern until the desired diameter is met. This means you can work more or fewer rounds. To make a swatch, use the pinhole cast on described above. Work the pattern with the stated needles until it measures 4" in diameter. If the drape is satisfactory and you are getting the correct gauge, continue working the pattern. If the drape is too stiff and you are getting more stitches per 4", begin again with larger needles. If the drape is too loose and you are getting fewer stitches per 4",

begin again with smaller needles. Roughly 16 rounds will create a 4" diameter, 2" on either side from the start. If you measure straight outward from the center, you will need 32 rounds for 4" creating an 8" diameter.

Abbreviations:

K2tog tbl – Knit two stitches together through the back loop.

Front

With A and crochet hook, CO 10 sts using Emily Ocher's Cast On. Evenly distribute sts from crochet hook to four dpn's.

Setup Rnds:

Rnd 1: With B, beginning with the first CO st, knit 1 rnd.
Rnd 2: With A, being careful not to twist, join in the rnd. PM to mark rnd start. Knit to end.
Rnd 3: With B, knit to end.

Begin Eyelet Spiral Helix pattern:

Rnd 1: With A, (yo, k1) ten times – 20 sts.
Rnd 2 and all even rnds: With B, knit to end.
Rnd 3: With A, (yo, k2) ten times – 30 sts.
Rnd 5: With A, (yo, k3) ten times – 40 sts.
Rnd 7: With A, (yo, k4) ten times – 50 sts.

Cont in this manner adding 10 sts on every odd rnd using A by working a yo and adding 1 to the number of stitches between yo's as you progress outward. There are ten sections. When large enough, change to 16" circular needles. Work until there are 160 sts or the piece is 10" in diameter, ending with an even rnd in color B – rnd 32. Do not bind off. Cut yarns and set to the side.

Back

Work the same as Front, reversing the colors. When large enough, change to second 16" circular needle. Do not cut yarns after working rnd 32.

Finishing

Steam block both pieces.

Join Front and Back

Place the pieces, wrong sides together, with the front facing toward you and the back facing outward to the back. Using the open end of one of the circular needles and color A, cont working in the rnd by knitting the first st on the front piece tog with the first st on the back piece. Cont knitting the front and back tog until 112 sts, or seven sections, have been worked tog. Insert the pillow form and cont to join the front to the back until all sts have been worked. All sts should now be on one 16" circular needle.

Bind Off Using Helix I-cord Bind Off

Color B should still be attached to the work. Using this strand of color B and one dpn, CO 5 sts using the cable cast on for helix I-cord described above onto the circular needle, next to the pillow sts. Begin helix I-cord bind off:

Rnd 1: With A and dpn, k4, k2tog tbl. Sl sts back to left needle.
Rnd 2: With B and dpn, k3, ssk. Sl sts back to left needle.
Cont to rep Rnds 1 & 2 until all 160 sts from the pillow have been bound off.

TECHNICAL TIPS: As you work the I-cord, you will be working the last stitch of the I-cord together with the next stitch on the pillow as you knit two stitches together through the back loop.

As you work the I-cord take care not to twist the yarns as you change colors. The working yarn should originate from the left side of the I-cord stitches.

BO all sts in A and seam tog with start of I-cord. Insert yarn tails into the cord and pull through the side, slightly stretched. Cut and allow to pull back into the cord.

LESSON PILLOW 2
HELIX SPIRAL PILLOW
BY LESLIE GONZALEZ



This bolster pillow is worked from cast on to bind off in one spiral. The flat ends are worked in the main color using Elizabeth Zimmermann's Π (pi) formula for increasing to keep the end flat. Once the diameter of the pillow is reached, the work is no longer increased and begins to form a tube. The helix pattern is worked over the tubular section of the pillow. There is a wide stripe and a narrow accent stripe. The wide stripe is really three one-round spirals worked in the main color creating the illusion of a wide stripe. The accent stripe is worked by holding two yarns together and purling the stitches to further emphasize the stripe. Once the tubular section is finished, the pillow form is inserted and the final side is made by working the Π (pi) formula in reverse.

Finished Measurements:

6" diameter x 12" long

Materials:

Universal Yarn DELUXE WORSTED (220yds, 100g, 100% Wool): 2 skeins #71661 Shadow Lime, divided into three sections and designated colors A1, A2, and A3, and 1 skein each #3620 Coral (color B) and #12297 Sherbert (color C)
Crochet hook size E (3.5mm)
Size 7 (4.5mm) needles, set of 5 dpn's and one 16" circular needle.
4 Stitch markers
Tapestry needle
6" x 12" bolster pillow form

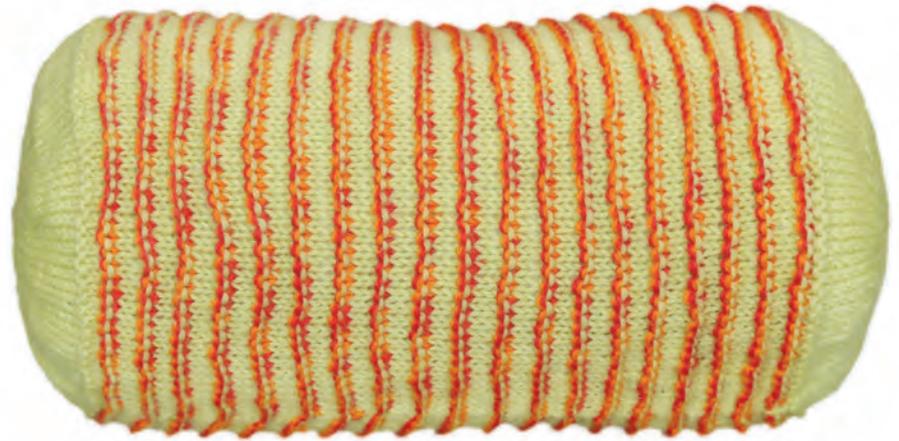
Gauge:

In helix spiral, 20 sts & 32 rnds = 4"/10cm. To save time, take time to check gauge.

TECHNICAL TIP – Preparation – Measuring

Gauge: You will want to make a gauge swatch to be sure your pillow is the correct size. To work a gauge swatch you will need all five yarns (A1, A2, A3, B and C) and a set of dpn's. Cast on 10 sts using A1 onto first dpn; CO 10 sts holding B and C together onto second dpn; CO 10 sts using A2 onto third dpn. Using A3, knit 10 sts on first needle, drop A3, pick up A1 and knit 10 sts on the second needle, drop A1. Pick up B and C, holding the two yarns together, purl 10 sts on the third needle, drop B and C. Pick up A2 and join in the round by knitting the next 10 sts on the first needle, drop A2. Continue in this manner until the piece is about 4" long. Using the gauge worksheet calculate the gauge.

PILLOW 2:
HELIX SPIRAL PILLOW
(SIDE)



Abbreviations:

M1 – Make one stitch by inserting the left-hand needle, from front to back, under the strand of yarn which runs between the stitch just worked and the next stitch on the left-hand needle.
Knit this strand through the back loop.

Pillow Directions

Flat End 1

With A1 and crochet hook, CO 6 sts using Emily Ocher's Cast On. Distribute sts from crochet hook to 3 dpn's. Join in the rnd being careful not to twist. PM to mark rnd start.
Rnd 1: Knit.
Rnd 2: *K1, m1; rep from * to end – 12 sts. Knit 2 rnds.
Rnd 5: *K1, m1; rep from * to end – 24 sts. Knit 4 rnds.
Rnd: 10: *K1, m1; rep from * to end – 48 sts. Knit 8 rounds.
Rnd 19: *K1, m1; rep from * to end – 96 sts. Knit 9 rnds. Center should be 6" in diameter.

TECHNICAL TIP: If your center is not 6", continue to work in the round until the center is 6". This flat end covers the flat end of your pillow form. Write down how many rounds you worked from Rnd 19 to this point.

DESIGNER NOTE: Pi circles worked from the pinhole outward typically use yarn overs for the increases, but to make both flat ends look more alike, this end uses make one increases.

Purl one rnd.

TECHNICAL TIP: This purl round marks the

start of the pillow body. The pillow body should measure 12" from this purl round.

Pillow Body

Change to circular needles and set up for accented helix spiral. With A1, k16, pm, drop A1. Join B and C. Holding B and C together, p32, pm, drop B and C. Join A2 and k32, pm, drop A2. Join A3 and k16. You should be at the original rnd marker, remove this marker.

Continue working helix spiral:

*With A3 knit to next marker, sm, and drop A3. With A1, knit to next marker, sm, and drop A1. Holding B and C together, purl to next marker, sm, and drop B and C. With A2 knit to next marker, sm, and drop A2. Rep from * until piece meas 12" from beg of pillow body. End spiral with B & C.

DESIGNER NOTE: To work the four spirals there will be three sections and four yarn groups.

Three of the yarn groups are the same color giving the illusion of one thicker spiral. Holding B and C together slightly thickens this yarn group adding a textural element to the colored single stripe.

The marker between B&C and A2 now becomes the rnd marker. Knit one rnd with A2, removing the two other markers as you come to them. Cut B, C, A1, and A3 leaving a 6" tail on each. With A2, purl one rnd.

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PILLOW 2:
HELIX SPIRAL PILLOW
(END)



of rounds as you did on the first flat side. This will be the final number of rounds you worked and noted.

Then work as follows:

Rnd 1: *K2tog; rep to end – 48 sts.
Knit 8 rnds.

Rnd 9: *K2tog; rep to end – 24 sts.
Knit 4 rnds.

Rnd 14: *K2tog; rep to end – 12 sts.
Knit 2 rnds.

Rnd 17: *K2tog; rep to end – 6 sts.
Knit 1 rnd.

Cut yarn and draw through rem sts. Secure tail and hide inside pillow.

Steam block the flat end just worked.

References

Radcliffe, Margaret. "Helix Knitting." *The Essential Guide to Color Knitting Techniques*. North Adams, MA: Storey Pub., 2008. 198-203.

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Change to dpn's and with A2 purl one rnd. Insert pillow form. Knit 9 rnds.

Flat End 2

Weave in all tails and gently steam pillow body.

TECHNICAL TIP: If you worked more than 9 rounds to get a 6" spiral, work the same number

TECHknitter. "Helix (barberpole) Stripes, Part 2 of a Jogless Stripe Series." *TECHknitting*. Blogger, 1 Mar. 2011. Web. 31 Aug. 2015. <[http:// techknitting.blogspot.com/2011/03/helix-barberpole-stripes-part-2-of.html](http://techknitting.blogspot.com/2011/03/helix-barberpole-stripes-part-2-of.html)>.



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