

Knitting Techniques by Mary Ellen Meisters

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Some of the following techniques are not original with me, but are ideas I have collected during my fifty years of knitting. I use them frequently and think it is convenient to have them written in one place, especially for anyone who is not used to using them.

§1. Tubular cast-on for one-by-one ribbing or for double knitting

- **Row 1:** With scrap yarn, using the simple cast-on (sometimes called backwards thumb cast-on) cast on one-half the stitches required plus 1.
- **Row 2:** With the yarn you will use for the garment, and needles 2 or 3 sizes smaller than those needed for the ribbing, \star knit 1 (**k1**) and yarn over (**yo**) \star ; repeat between *stars* across row, ending with k1. This will give you an odd number of stitches. Turn work.
- **Row 3:** \star Slip 1 (**sl1**) as if to purl with yarn in front, k1 \star ; repeat between *stars* across row, ending with sl1. Turn work.
- **Row 4:** \star K1 and sl1 as if to purl with yarn in front \star ; repeat between *stars* across row, and end with k1. Turn work.

Repeat rows 3 and 4 at least once, then change to the size needle required for the ribbing and work 1-by-1 ribbing the usual way for the desired length. Remove the scrap yarn and you have a neat rounded stretchy edge through which you can run elastic.

§2. Tubular bind-off for one-by-one ribbing or for double knitting

The last two or four rows of the ribbing must be done in double knitting. That is, knit the knit stitches, and slip the purl stitches as if to purl with yarn in front, for an even number of rows. Break off yarn two or three times as long as the length of the row. Thread the yarn into a blunt pointed darning needle (DN) and proceed as follows: If the first stitch is a knit, put the DN through the stitch as if to purl, and leave it on the knitting needle. Put the DN through the second stitch as if to knit, and pull the yarn through both stitches leaving both stitches on the knitting needle. If the first stitch is a purl, put the yarn through the stitch as if to knit, and through the second stitch as if to purl. From this point on you will work the stitches according to whether the first stitch on the knitting needle is knit or purl. If the first stitch is a knit, insert DN into it for the second time as if to knit, and slip it off the knitting needle. Insert the DN through the next knit stitch as if to purl, and pull the yarn through,—but leave the stitches on the knitting needle. If the first stitch is a purl, insert the DN into the first stitch for the second time as if to purl, and slip it off the knitting needle. Insert the DN between the next two stitches from the back, and put it through the second stitch on the knitting needle (which is a purl) as if to knit. Pull the yarn through, but leave the stitches on the knitting needle. Continue in this manner until all stitches are bound off.

§3. Tubular circular: knitting, double knitting, and 1-by-1 ribbing

Work rows 1 and 2 for tubular cast-on, as described in §1, using a *circular* needle and an *even* number of stitches. Place a marker and join, being careful not to twist stitches. Then proceed as follows:

- **Row 1:** * K1 and sl1 as if to purl with yarn in front * ; repeat between *stars* around.
- **Row 2:** * Sl1 as if to purl with yarn in back, purl 1 (**p1**) * ; repeat between *stars* around.

Repeat these 2 rows at least once, then continue with normal 1-by-1 ribbing or the invisible bind-off.

§4. Decreases (and their notational abbreviations)

- TO SLANT LEFT ON A KNIT ROW: Slip two stitches, one at a time, as if to knit. Put the left needle back into the stitches toward the front and knit them together in the regular way. (**ssk**)
- TO SLANT RIGHT ON A KNIT ROW: Knit two together in the regular way. (**k2 tog**)
- TO SLANT LEFT ON A PURL ROW: Purl two stitches together in usual way. (**p2 tog**)
- TO SLANT RIGHT ON A PURL ROW: Purl two stitches together through the back loops, going into the second stitch first. (**p2 tog tbl**)
- DOUBLE DECREASE FOR A V-NECK SWEATER: This can be worked in single or double rib. Work to the stitch before the center front stitch. Slip (as if to knit) the stitch before the center stitch together with the center stitch. Knit the next stitch and pass the two slipped stitches over the knit one. (**s2kp2**) Work the same way whether the stitches are knit or purl on either side of the center stitch. Decrease on every row for the desired width of ribbing.

§5. To knit shoulders together

Have an equal number of shoulder stitches on the front and back of your garment. Place them on two double-pointed needles, right sides together, or wrong sides together if you want a decorative shoulder seam. With a third needle, knit together one stitch from the front needle and one stitch from the back needle. Work another set and you will have two stitches on the right-hand needle. Bind off one stitch in the regular way. Continue in this manner until all the shoulder stitches have been bound off. Pull yarn through the last stitch. Be sure to knit with the same size needle that you used for the body of the garment. If you forget to bind off as you are knitting the stitches from the front and back needles together, you may do a regular bind-off row since all the stitches are now on one needle.

§6. Invisible increase

- KNIT: Lift the strand that lies between the stitches on the left and right needles and place it on the left needle. Knit into the back of this strand twisting it to make an added stitch.
- PURL: Place the strand that lies between the stitches on the left and right needles over the left needle and purl into the back to twist the strand making an added stitch.
- NOTE: If you do not twist the strand when you work it, you will have a noticeable hole at the increase. This may or may not be desirable.

§7. Kitchener, or grafting, stitch for stockinette [Horatio Herbert Kitchener 1850-1916]

Grafting is done with wrong sides together, right side of fabric facing you. Thread a blunt pointed darning needle (DN) with garment yarn. Put the same number of stitches on two double pointed knitting needles; holding one closer to you, the *front* needle; and one further from you, the *back* needle).

1. Pass DN through first stitch in front needle as if to purl. Pull up yarn, but leave stitch on the knitting needle.
2. Pass DN through first stitch on back needle as if to knit and pull up yarn, but leave the stitch on the knitting needle.
3. Pass DN through first stitch on front needle for the second time as if to knit, slipping the stitch off the knitting needle.
4. Pass DN through the second stitch on the front needle as if to purl, leaving the stitch on the knitting needle. Pull up yarn.
5. Pass DN through the first stitch on the back needle as if to purl, slipping the stitch off the needle. Pull up yarn.
6. Pass DN through the second stitch on the back needle as if to knit, leaving the stitch on the knitting needle. Pull up yarn.

Repeat steps 3 through 6 until all stitches are used. Snug up ends. Grafting will look exactly like the knitted fabric. It can be used for the toes of socks or any other place that calls for an invisible joining.

For garter stitch: Do step 1 on both needles; then repeat steps 3 & 4 across all stitches on both needles.

§8. I-cord for drawstrings, knitted buttons, or trim

Using 2 double pointed needles of proper size for the yarn you choose, cast on 2 or more stitches and knit them. Do not turn the work—keep the knit side toward you. Place the needle with the stitches on it in your left hand, slide the work down the needle and knit again, pulling up yarn snugly. Repeat until you have the length desired. Bind off.

§8.1. I-cord buttons

Make an I-cord about one to one-and-a-half inches long and tie it in a tight knot. Leave a tail of yarn with which to attach the button to the garment.

§8.2. Knitted-on I-cord (for the front band of a cardigan)

Cast on 3 extra stitches at the outside edge of the front band. When these stitches are at the beginning of a row, slip them as if to purl with yarn toward the wrong side of your work and proceed across the row. When these stitches are at the end of a row, knit them on the right side or purl them on the wrong side. This will make a smooth rolled edge that will not sag. You may use this if your front band is in ribbed-, seed-, stocking-, or garter-stitches. If you are using a contrasting color for the I-cord, to avoid bleed-through, work from the wrong side.

§9. Double knitting

Think of double knitting as having two right sides of contrasting colors. Think of stitches as being in pairs; one knit, one purl. All the knit stitches in a row make up one layer and all the purl stitches make the other layer. Both layers are stockinette on the outside; the purl sides are on the inside. There are two methods for double knitting:

1. You can knit the stitches for one layer (the one facing you) and slip the stitches for the other layer. (Knit the knits and, *with yarn in front*, slip the purls.) In the next row, knit the stitches you slipped in the previous row and slip, with yarn in front, the stitches you knitted. You must work across and back to add one row to both layers, so this is slow.
2. The second method allows you to work both layers of the fabric at the same time. If you are familiar with holding one color of yarn in each hand for two-color stranded knitting, you will pick this up quickly. Hold the main color (MC) in one hand and the contrasting color (CC) in the other. * Knit the first stitch with MC as usual, bring *both* yarns to the front, purl the second stitch with CC, and bring *both* yarns to the back * ; repeat between *stars* across the row. This will give you a fabric with an MC layer and a CC layer. You may also work both colors in one hand, if you prefer. The key point to remember is to bring *both* yarns forward when purling and *both* yarns back when knitting.

§9.1. Headband (a small but useful project for practice)

This headband fits most adults; but you can vary size by changing yarn weight and/or needle size. Use any sport or worsted yarn, that knits 5 stitches-to-the-inch, in two contrasting colors MC and CC. Use size 2–5 circular needle no longer than 24 inches; or use four or five double-pointed needles. Use some scrap yarn for step 1, because you will *discard* this yarn in step 4. *The ×'s on the chart indicate where to switch colors.* Each square in the chart represents *two* stitches, 1 knit and 1 purl. Colors reverse on opposite sides.

1. Using tubular cast-on (§1, Row 1 only), cast on 90 sts with scrap yarn.
2. Now, with MC, and using a very small circular needle, * k1 yo * ; repeat between *stars* to get 180 sts. Join, being careful not to twist sts; place a marker.
3. * k1 with MC, p1 with CC * ; repeat between *stars* to do row 1 of the chart 5 times around the band.
4. Each row of the chart is to be repeated five times around the band. Change to a larger circular needle,—and, reading the chart from right to left and bottom to top, do row 2. Continue by doing all 15 remaining rows, then rows 1 & 2 again. Knit the 90 knit sts with MC and purl the 90 purl sts with CC, unless otherwise indicated by the symbol ×. When you have completed these 19 rows, bind off using tubular bind-off (§2). Remove the scrap yarn, weave in the ends, and block lightly.

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§10. Making your own pattern for a basic sweater

To determine the *size*, measure the chest-width of a sweater that fits you well. Select a stitch pattern. Knit a gauge swatch *using the stitch pattern you selected* and containing as many complete patterns as necessary to make at least 20 stitches.

§10.1. Figuring the number of stitches needed for your garment

For example,—If your pattern swatch measures $3\frac{1}{2}$ inches, and the sweater you want to make measures 42 inches, divide 42 by $3\frac{1}{2}$ ($42 \times \frac{2}{7} = 12$) and multiply the result by the number of stitches (n) in the swatch. That is: 42 divided by $3\frac{1}{2}$ times n equals $12n$ stitches required for size 42. If you are working the back and front separately you must divide the number by 2. If the number of stitches in the repeated pattern isn't equal to the number of stitches in your calculation you will have to fudge a few stitches.

Calculate the number of stitches you need for the back, plus 1 stitch on each side for the selvedge stitches. Cast on approximately 10 percent fewer stitches for the ribbing on needles 2 or 3 sizes smaller than those you are using for the body of the sweater. After the ribbing is completed (usually 2–3 inches), increase by the 10 percent of stitches that you didn't cast on at the beginning, evenly spacing them across the row. Knit a rectangle for a drop shoulder sweater. If you are making a drop shoulder sweater, knit the length desired to the shoulder and place the stitches on holders or on a piece of scrap yarn as follows: one-third for the neckline and one-third for each shoulder.

Most sweaters can be knitted in the round to the underarms. When the length to the underarm is reached, divide the stitches (half for front and half for back) and proceed back and forth on 2 needles to shoulder; finish the back first, then the front, so you can easily determine where to start the front neck.

Want a mock underarm seam?—Purl a few stitches at each side while working the body.

You can make a *square-set sleeve*, and thus reduce the length of the shoulder seam, by binding off an inch or two worth of stitches at the underarm. Then your sleeve will have to be knitted that much longer.

§10.2. Front of a cardigan

Cast on half of the number of back stitches. (You may have to fudge a few stitches to fit in your pattern.) For the front border cast on an additional 7–10 stitches, depending on your gauge. The front border should be about 1–1.25 inches plus 3 stitches if you are making an I-cord edge. Work the side with the buttons first so you can measure to evenly space the buttonholes. Buttonholes are usually spaced 2 to 4 inches apart. I use a scrap of yarn to mark the place for each buttonhole. Knit front until 3 or 4 inches shorter than the length to back shoulder. Put about one-third of the number of back neck stitches, along with the front border stitches, on a holder. These will be picked up later when you rib the neck band. Decrease the remaining third of the stitches on every other row along the neck edge. Continue until the front is the same length as the back, and the front has the same number of shoulder stitches as the back does.

§10.3. Front of a crew neck

When the front is 2 to 4 inches shorter than the back, place $\frac{2}{3}$ of the number of back neck stitches on a holder and decrease remaining stitches at each side of the neck until you have the same number of stitches for the front shoulders as you have for the back shoulders. Place the stitches on holders and later knit the shoulders together.

§10.4. Set-in sleeve

At the underarms on the front and the back decrease about 1 inch worth of stitches at the beginning of the row and decrease 1 stitch at a time, every other row at each side, until you have decreased another inch or two. Work even. *The same decreases must be done on the sleeves.* *Sleeve cap length C* must be made shorter than the *body armhole length B* by an amount of D inches. ($D = B - C$) The approximate amounts for D are given (in inches) in the following table.

CHEST SIZE	D = B - C
20" to 26"	2.0"
27" to 31"	2.5"
32" to 40"	3.0"
41" to 48"	3.5"
over 48"	4.0"

After this length has been reached, bind off remaining stitches. (These numbers are only approximate.)

§10.5. Sleeves for a drop-shoulder or square-set armhole

Measure the stitches you need for the cuff by holding the back ribbing around your wrist. Count the ribs that fit your wrist and cast on that number of stitches. After the ribbing is complete increase at least 10 percent of the stitches on the next row. To figure the number of stitches you need for the top of the sleeve, measure the depth of the armhole on the back (usually 9 or 10 inches) and take that number times the number of stitches per inch times 2. Take the number of stitches needed for the top of the sleeve, subtract the number of stitches already on the needle, divide by 2 and you have the number of increases you will need to make at each edge of your sleeve. Multiply the number of rows per inch times the desired length of the sleeve; divide by the number of necessary increases and you will know how many rows between increases should be worked. (I find that the number of rows is usually 4 or 6 between increases, or a combination of the two.) Stop the increases 1 or 2 inches before the desired length is reached. Don't forget to make a square-set sleeve longer. You may pick up stitches around the armhole (after the shoulders are knitted together and the side seams are sewn up) on a circular needle and knit down toward the cuff, reversing the shaping. Cuffs will usually have to be knitted on double pointed needles. Using this method you have no seams to sew up on the sleeves.

§10.6. Necks for cardigans and pullovers

§10.6.1. Round neck Cardigan

Pick up stitches from holders and stitches along the bound-off neck edge. Work in ribbing (usually 1 to 1.5 inches in width) for the neck band; and bind off loosely using a larger needle. One buttonhole should be worked in the neck band. Remember to consider this when you are spacing buttonholes in the front band.

§10.6.2. V-neck cardigan

You may start the V at any point. Pick up stitches around the neck. Evenly space the decreases along the front edge. Slant the decreases as follows: right side, right slant (k2 tog); left side, left slant (ssk).

§10.6.3. Crew neck pullover

Using a circular needle, pick up stitches around the neck edge. Work in ribbing (usually 1 to 1.5 inches in width) for the neck band; and bind off loosely using a larger needle.

§10.6.4. V-neck pullover

To start the neck, place the center-stitch of the front of the sweater on a holder.

To figure the spacing of the decreases: Take the number of rows in which you need to decrease (gauge \times length-of-V) and divide that number by the number of decreases needed to make the number of front shoulder stitches the same as the number of back shoulder stitches. This will determine how many rows you need to work between decreases. Work the decreases as evenly as possible in the 2^{nd} or 3^{rd} stitches from the edge, never in the edge stitch.

When working neck-band: Using a circular needle, pick up sts around the neck. Work to one stitch before the center-stitch, slip 2 sts *together* as if to knit, k1, and pass the 2 slipped sts over the knit-stitch (s2kp2). (This makes the center-stitch lay on top.) Do this every row for 1 or $1\frac{1}{2}$ inches; bind off loosely.

§11. Loose ends

- In most cases, if you are using a written pattern, no matter what it says about binding off the shoulders and the neck stitches, put them on a holder. It is easier to work them later; either to knit the shoulders together or to pick up for the neck band. Also, it looks neater and makes a smoother seam.
- Whenever possible do all decreasing and increasing not in the first or last stitch of a row, but in the second or third stitches in from the edge. This will give you a smoother edge for finishing.
- For a smooth even finishing-edge (e.g., on an edge I plan to join to another—or along which I will pick up stitches) I always slip (as if to knit) the first and last stitch on a wrong side row. Sew the seam with overcast stitches, with a few catch stitches along the way. (This makes a less bulky seam, especially when using bulky yarn.) When picking up stitches along this edge, pick up 1 stitch in the first stitch, 2 stitches in the second, 1 in the third, 2 in the fourth, etc.; or measure the length of the seam and multiply by the stitch gauge to determine the number of stitches to pick up.
- It is a good idea to periodically check the gauge as you are knitting a garment, because you don't always knit with the same tension. Also, you should look back at your knitting every couple of inches to check for mistakes. It is easier to fix them after only a few rows have been knitted.
- Here are some examples of yarn types.

TYPE OF YARN	STITCHES PER INCH	NEEDLE SIZE
fingering	7–8	1–3
sport	6	4–6
worsted	4.5–5	7–9
bulky	3–3.5	10–11

There are some yarns that do not fit into these categories. Sometimes you may want to knit much looser or tighter for various reasons. For example: A lace shawl might be knitted with fingering yarn on size 8 or larger needles. Usually the needle size and desired gauge are printed on the yarn label.

A reference for buttonholes: The best buttonhole I have found is a self-reinforcing buttonhole. The instructions for this buttonhole can be found in **A Second Treasury of Knitting Patterns**, page 354, by Barbara G. Walker, originally published by *Charles Scribner's Sons*, New York, 1968. Reprinted by **Schoolhouse Press**, 6899 Cary Bluff, Pittsville, WI 54466; Schoolhouse Press edition ©1998, Barbara G. Walker; ISBN: 0-942018-17-6.

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