

Suture material	Specific information	Loss of strength	Absorption rate & time to complete absorption	Type of degradation	Number of throws for safe knot – Interrupted pattern (Rosin et al. 1989)	Number of throws for safe knot – Continuous pattern- Start of line	Number of throws for safe knot – Continuous pattern- End of line
<p>CHROMIC GUT</p> <p>Collagen from the submucosa of sheep small intestine or serosa of cattle small intestine</p> <p>(Absorbable, natural, twisted multifilament)</p> <p>Packaged in alcohol solution</p>	<p>Surgical gut is quite reactive to tissues. Treatment with chromic salts reduces tissue reaction.</p> <p>Chromic gut may result in calculus formation if implanted in the urinary or gall bladder</p>	<p>~ 33 % at 7 days, and 67% at 28 days</p>	<p>Faster for regular than chromic, resorbed faster in infected tissues or tissues with high enzymatic activity (e.g. stomach)</p> <p>Complete absorption may take 90 days</p>	<p>Enzymatic proteolysis and phagocytosis (foreign body reaction)</p>	<p>3 throws</p>	<p>4 throws</p>	<p>5 throws</p>

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<p>POLIGLECAPRONE 25 (Monocryl®)</p> <p>Copolymer of glycolide & epsilon-caprolactone</p> <p>(Absorbable, synthetic monofilament)</p>	<p>Causes minimal tissue reaction</p>	<p>Very high initial tensile strength compared to other absorbable sutures materials</p> <p>Loss of 30-40% at 7 days and 60-70% at 14 days. Mostly lost all initial tensile strength at day 28.</p>	<p>Complete by 91-119 days</p>	<p>Hydrolysis</p>	<p>Not determined but thought to possess excellent knot security</p> <p>Clinically used with 4 throws</p>	<p>Not determined</p> <p>Clinically used with 5 throws</p>	<p>Not determined</p> <p>Clinically used with 6 throws</p>
<p>POLYDIOXANONE (PDS II®)</p> <p>(Absorbable, synthetic monofilament)</p>	<p>May result in calculus formation if implanted in the urinary or gall bladder</p> <p>Calcinosis circumscripta has been reported after use of polydioxanone</p>	<p>30% loss after 14 days, 50% after 28 days and 75% after 42 days</p>	<p>Complete by 180 days (6 months)</p>	<p>Hydrolysis</p>	<p>4 throws</p>	<p>5 throws</p>	<p>6 throws</p>

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GLYCOMER 631 (Biosyn®) Glycolide, dioxanone and trimethylene carbonate (Absorbable, synthetic, monofilament)	May result in calculus formation if implanted in the urinary or gall bladder	Loss of approximately 25% at two weeks and 60% at three weeks after implantation	Complete between 90 and 110 days	Encapsulation by fibrous tissue and subsequent hydrolysis	Not determined Clinically used with 4 throws	Not determined Clinically used with 6 throws	Not determined Clinically used with 7 throws
POLYGLACTIN 910 (Vicryl®, Polysorb®) Copolymer of glycolide and L-lactide in a 9:1 ratio (Absorbable, synthetic multifilament)	Draining tract formation is possible if used in infected situations May result in calculus formation if implanted in the urinary bladder	Loss of 35% at two weeks and 60% at three weeks (70% in sizes 7-0 and smaller). All original tensile strength essentially lost at 4-5 weeks after implantation	Complete absorption between 56 and 70 days	Hydrolysis	4 throws Although studies have shown that 3 throws may be sufficient (Rosin et al. 1989)	5 throws	6 throws
POLYGLACTIN 910 RAPIDE (Vicryl Rapide®) Copolymer of glycolide and L-lactide in a 9:1 ratio (Absorbable, synthetic multifilament)	Useful for oral surgery.	Loss of 50% of tensile strength at 5-6 days and 100% at 10-14 days Spontaneous dislodgement can be seen at 11-14 days	Complete absorption takes 42 days	Hydrolysis	Not determined	Not determined	Not determined

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POLYGLYCOLIC ACID (Dexon®) Polymer of glycolic acid (Absorbable, synthetic multifilament)	Use in infected tissues is not recommended due to its braided nature	Loss of 33% by 7 days and 80% within 14 days. No strength after 28 days Absorption is more rapid in an alkaline environment and in urine	Complete absorption occurs within 120 days	Hydrolysis	3 throws	4 throws	5 throws
POLYGLYCONATE (Maxon®) Copolymer of glycolic acid and trimethylene carbonate (Absorbable, synthetic monofilament)		Loss of: 20% at 7days, 25% at 14 days, 45% at 21 days, 50% at 28 days and 75% at 42 days	Complete absorption between 180 to 210 days	Hydrolysis	Not determined but thought to possess excellent knot security	Not determined	Not determined
POLYGLYTONE 6211 (Caprosyn®) (Absorbable, synthetic monofilament)	Recommended for procedures where early loss of tensile strength and absorption are advantageous	Loss of: 50-60% at 5 days, 70-80 % at 10 days and almost 100% at 14 days	Complete absorption within 56 days	Hydrolysis	Not determined But recommend 4 throws	Not determined	Not determined

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<p>SILK</p> <p>From the cocoon of the silk worm - coated with wax</p> <p>(Non-absorbable, natural multifilament)</p>	<p>Despite being a non- absorbable material, silk causes significant tissue reaction</p> <p>Promotes infection in contaminated wounds</p> <p>Calculogenic in the urinary or gall bladder and ulcerogenic in the GI tract</p>	<p>Initial tensile strength of silk is limited</p> <p>Undergoes degradation overtime and loses its tensile strength after 6 months</p>	<p>Silk is typically absorbed within two years (especially in cats)</p>	<p>(Foreign body reaction)</p>	<p>Not determined</p> <p>Silk possesses excellent handling properties but has poor knot security</p>	<p>Not determined</p>	<p>Not determined</p>
<p>NYLON (POLYAMIDE)</p> <p>(Ethilon®&Dermalon® = monofilament; or Nurolon®&Surgilon® = multifilament)</p> <p>Amine-containing thermoplastic (derived hexamethylenediamine and adipic acid)</p> <p>(Non-absorbable, synthetic)</p>		<p>n/a</p> <p>Although thought to lose approximately 15-20% per year</p> <p>(braided materials lose strength faster than monofilament suture)</p>	<p>n/a</p>	<p>(Hydrolysis)</p>	<p>4 throws</p>	<p>5 throws</p>	<p>6 throws</p>

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<p>POLYPROPYLENE (Prolene®, Surgipro®, Surgilene®)</p> <p>(Non-absorbable, synthetic [polyolefin] monofilament)</p>	<p>Least thrombogenic suture (used for cardiac & vascular surgery)</p> <p>Least likely to potentiate infection</p>	<p>n/a</p> <p>Does not degrade overtime – True non-absorbable</p>	<p>n/a</p>	<p>n/a</p>	<p>3 throws</p> <p>(Excellent knot security due to plastic deformation during tying)</p>	<p>4 throws</p>	<p>5 throws</p>
<p>POLYESTER (Ethibond Excel®, Mersilene®, Ticron®, Dacron®)</p> <p>Usually coated (e.g. Polybutylate for Ethibond Excel®) to decrease tissue drag and improve handling</p> <p>(Non-absorbable, synthetic multifilament)</p>	<p>Causes significant tissue reaction resulting in fibrous tissue encapsulation</p> <p>Can result in development of fistulous tracts if implanted in infected tissues or if the suture is contaminated with bacteria at the time of implantation or later by hematogenous spread</p>	<p>n/a</p> <p>Initially one of the strongest synthetic non-absorbable suture material</p> <p>Does not degrade overtime – True non-absorbable</p>	<p>n/a</p> <p>little or no loss of tensile strength overtime</p>	<p>n/a</p>	<p>Not determined</p> <p>Usually 5 to 7 throws when used as an orthopaedic implant due to tendency of knot to unravel (poor knot security)</p>	<p>Not typically used in this fashion</p>	<p>Not typically used in this fashion</p>

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<p>POLYMERIZED CAPROLACTUM (Supramid®, Braunamid®, Vetafil®)</p> <p>Polyamide suture enclosed in a proteinaceous material</p> <p>(Non-absorbable, synthetic, twisted multifilament)</p>	<p>Mostly used for skin closure</p> <p>Reported to frequently cause draining fistulous tracts when used for stifle stabilization</p>	<p>n/a</p> <p>Causes significant tissue reaction</p>	<p>n/a</p>	<p>n/a</p>	<p>Not determined</p>	<p>Not determined</p>	<p>Not determined</p>
<p>STAINLESS STEEL</p> <p>316-L steel</p> <p>(Non-absorbable, metallic mono- or multifilament)</p>	<p>Not frequently used in surgery (larger gauge wire used to close sternotomy incisions)</p> <p>Sharp cut ends & non elastic material (will cut tissues if applied too tightly)</p> <p>Difficult to handle</p>	<p>None – True non-absorbable material</p> <p>Non reactive and non corrosive</p>	<p>n/a but very strong</p>	<p>n/a</p>	<p>Not determined but secure knot formed with one square knot (2 throws)</p>	<p>Not used in continuous pattern</p>	<p>Not used in continuous pattern</p>