

## Promotes Healing



Based on meta-analysis of randomized clinical trials, the use of collagen biomaterials for chronic wounds led to statistically significant improvement in wound healing rates with reduced recurrence of ulcer formation compared to standard of care.

Summary of data from: The clinical efficacy of collagen dressing on chronic wounds: A meta-analysis of 11 randomized controlled trials  
Shu H., Xia Z., Qin X., Wang X., Lu W., Lou Q., Zhang Z., & Xiong X; Front. Surg. 2022; 9:978407



“Collagen can directly modulate the wound microenvironment, serve as a scaffold for cellular attachment and function or deliver biologically active principles to antimicrobials to aid in wound healing.”

Direct quote from: Collagen in Wound Healing  
Shomita S. Mathew-Steiner, Sashwati Roy, & Chandan K. Sen; Bioengineering 2021 May; 8(5): 63



“Taking into account all the morphometric and histological results of this research, we can conclude that the new collagen treatment, compared to the untreated control group, produces significantly faster wound closure and, at the same time, promotes a slight progression of the reparative process, showing more mature and organized—and, therefore, higher-quality—repair tissue, compared with the rest of the groups.”

Direct quote from: Wound Healing Modulation through the Local Application of Powder Collagen-Derived Treatments in an Excisional Cutaneous Murine Model  
Benito-Martinez S., Perez-Kohler B., Rodriguez M., Izco J.M., Recalde, J.I., and Pascual G.; Biomedicines 2022, 10(5): 960



“Type I Collagen can induce angiogenesis in the presences of fibrin in a healing wounds.”

Direct quote from: Fibrin and Collagen Differentially but Synergistically Regulate Sprout Angiogenesis of Human Dermal Microvascular Endothelial Cells in 3-Dimensional Matrix  
Feng X., Tonnesen M., Mousa S., & Clark R.; International Journal of Cell Biology 2013; 2013:231279

## Purified 100% Type I Collagen



“Denatured or degraded collagen (more accurately described as gelatin), especially when mixed with noncollagenous substances, is expected to degrade faster than a native collagen dressing in a wound environment because of its inherently modified and processed nature.”

Direct quote from: Modern Collagen Wound Dressings: Function and Purpose  
Cynthia Ann Fleck & Richard Simon; Journal of the American College of Certified Wound Specialists 2010 Sep; 2(3): 50-54

## Low pH (Antimicrobial) Collagen



“An acidic microenvironment using acidic buffers can significantly improve re-epithelialization of open wounds, wound closure and the collagen levels of non-infected wounds.”

Direct quote from: Influence of Acidic pH on Wound Healing In Vivo: A Novel Perspective for Wound Treatment  
P. Sim, X. L. Strudwick, Y. Song, A. Cowin, S. Garg; International Journal of Molecular Sciences 2022 Nov 7; 23(21):13655



“Bacteria can survive at a range of pH levels, while keeping their internal pH fairly constant. Therefore, it is possible that several strains of bacteria grow best in an environment of higher (or more alkaline) pH levels. Thus, elevated levels of tissue pH may be a result of the presence of these types of bacteria.”

Direct quote from: The Exploration of Tissue pH in Wounds and its Relationship to Bacterial Contamination  
Susan Margaret Shorrock; A Thesis Submitted to the Faculty of the Worcester Polytechnic Institute (May 2000)



“The minimum pH at which *Escherichia coli*, *Pseudomonas aeruginosa* and *Streptococcus pyogenes* can grow is 4.3, 4.4, and 4.5, respectively.”

Direct quote from: The pH of wounds during healing and infection: A descriptive literature review  
Bennison LR, Miller CN, Summers RJ, Minnis AMB, Sussman G, & McGuinness W; Wound Practice & Research (2017) Vol. 25; No. 2: 63-69