Shark Cartilage

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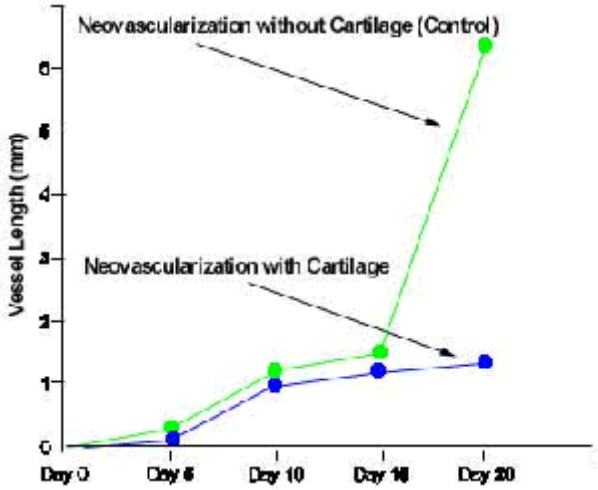
Shark cartilage may have applications for cancer, psoriasis and osteoarthritis. The major components of shark cartilage are proteins (approximately 40%), glycosaminoglycans (GAGs, approximately 5%-20%), and calcium salts.[1]

Angiogenesis, cancer and shark cartilage

Angiogenesis is the growth of new blood vessels. Angiogenesis appears to be necessary for the growth of tumors.[2] Does this mean that if angiogenesis is inhibited that tumor growth may be prevented? The answer is quite possibly, yes! In fact, research on shark cartilage indicates that this substance may play a role in inhibiting angiogenesis, and inhibiting tumor cell growth.



One of the earliest animal studies on shark cartilage demonstrated that this substance was capable of inhibiting tumor-angiogenesis-factor (TAP), which in turn strongly inhibited capillary proliferation induced by tumors.[3] Similar research also showed shark cartilages ability to inhibit neovascularization, or angiogenesis (see figure), thereby restricting tumor growth.[4]
Of course animal research is not human research. So how does shark cartilage perform in humans? Very well, actually. In one study, shark cartilage was evaluated for its effect on endothelial cell proliferation. The significance of this is that proliferation of the endothelium is a hallmark of angiogenesis, and inhibition of endothelial cell proliferation indicates potential antiangiogenic activity. The results of this study were that shark cartilage treatment resulted in reduction in endothelial cell proliferation[5]—a clear indication of antiangiogeneic activity.

In other research, shark cartilage was given to patients in advanced stages of cancer. The results were that 7 of 9 (87%) cases exhibited positive a response, defined as a reduction gross tumor size—which is significant considering that during the study no other form or treatment was employed.[6]

In another study, 29 patients with advanced stages of cancer were given 1.0 to 2.25gm/Kg/day of shark cartilage. The results were that 15 patients (15%) showed improvement based upon body weight gain, rising levels of hemoglobin and hematocrite, better performance of the cell mediated immune

response pattern and Kamofsky's index compared to the pre-admittance patterns. Also, measurable reductions in tumor size were noted in prostatic and ovarian tumors and there was no regrowth of surgically removed CNS tumors.[7] Although not all research has demonstrated the same beneficial effects with shark cartilage in patients with advanced stages of cancer,[8] there is good reason to consider its use as part of a multifaceted approach to cancer, in cooperation with a qualified oncologist.

Angiogenesis, psoriasis and shark cartilage

Like cancer, psoriasis is a condition in which changes in the vascular system play in important role. An early change is dilation of capillaries, but proliferation of blood vessels and neovascularization occurs in more developed psoriatic lesions.[9] Consequently, it would seem that the antiangiogenic properties of shark cartilage might have benefit in this application—and indeed that is just what research has suggested. In one study, for example, a specially prepared extract of shark cartilage was found to inhibit both angiogenesis as well as the activity of a collagen digesting enzyme. Furthermore, when the shark cartilage extract was applied to the forearms of test subjects, it was shown to have anti-inflammatory properties (This topical benefit was seen in another study as well.[10]). This data suggests that shark cartilage has a beneficial effect in psoriasis.[11]

Other research using the special shark cartilage extract was conducted on 49 patients with moderate to severe plaque psoriasis. The results were that shark cartilage was well tolerated, improvements were noted, and the data suggests efficacy in treatment of psoriasis.[12]

In another study, ten human subjects with psoriasis where given shark cartilage for 40 days. During the study, non-concomitant medications were administered. The results were that patients complaining of itching noticed its disappearance on day 6. Over the course of the 40 days, additional indications of improvement were noticed, and 7 patients were healed by the end of the study. The researchers concluded that shark cartilage seems to "be able to control the greater part of psoriasis pathogenetic mechanism..."[13]

Arthritis and shark cartilage

In addition to cancer and psoriasis, shark cartilage is now becoming widely accepted as an effective means for treating osteoarthritis and rheumatoid arthritis . "Phenomenal" is how Robert C. Greenburgh, B.S., D.C., F.A.S.A., describes the results he has seen from approximately sixty-five arthritis patients who have used, and continue to use, shark cartilage therapy under his care.[14] A number of studies have demonstrated the effectiveness of cartilage as an anti-inflammatory and analgesic (pain reliever) for arthritis.[15] [16] [17] [18]

Exactly how shark cartilage works to achieve these results is not completely understood—but it is not likely that it is a function of shark cartilage's antiangiogenic properties. One possibility that has been investigated is that chondroitin sulfate, one of the most plentiful glycosaminoglycans found in cartilage, may be one of the active ingredients for this role.[19] [20] [21] This makes sense when considering that chondroitin acts like a liquid magnet, attracting fluid into the proteoglycans (i.e, large molecules that trap water like a sponge and make cartilage resilient[22]). This fluid acts as a shock absorber and also brings nutrients with it into the cartilage. Perhaps of greater significance than its fluid-enhancing properties, chondroitin sulfate protects existing cartilage from premature breakdown by inhibiting certain cartilage-chewing enzymes. Furthermore, chondroitin stimulates the production of proteoglycans and collagen that are needed for healthy new cartilage.[23] Research on chondroitin sulfate has demonstrated that it is effective in the treatment of osteoarthritis. Studies were conducted in several different countries, but the results were always the same: patients treated with chondroitin sulfate experienced significant relief of pain, and enjoyed increased mobility.[24] [25] [26] [27]

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