Harry ROBERTSON
Revital

http://www.healingtherapies.info/ChickenFeet.htm

CAN POWDERED CHICKEN FEET REGENERATE NEURONS?
by Villti Ulfur

Because chicken feet have the potential to regenerate, including nerves, bone, and muscle, ground-up preparations of this poultry waste product (in the past, called Revital) can be used to promote regeneration and healing in spinal cord injury (SCI). Given its potential, it was unfortunate that the FDA stopped these efforts, spearheaded by veterinarian Dr. Harry Robertson several decades ago.

Preparation:

Obtaining the source material is easy because chicken feet are discarded as waste products. The key to preparing this regenerative material is removing all water at low temperature. Most dehydration methods will work because the proteins are stable,

The Process:

Basically, the dehydration process causes the water from the wound when the powdered chicken's feet preparation is applied to join chemically and ionically with the amino acids. This creates an electrical change by which a brief period of nerve bridging takes place. When the preparation is repeatedly applied, this bridging allows the formation of new nerves according to the already present DNA. Due to the breakdown of the preparation in the binding process, there is no immunological rejection.

Nerves are the most difficult of the various tissue components to re-grow. For example, it is much easier to re-grow bone than nerve, not so much because of speed but rather direction. Although it is possible to re-grow nerves without sufficient genetic encoding by using overriding electrical fields, such an alternative will not provide full function and is less desirable. Through electrical interconnectively, the natural means are preferable.

The uncomplicated application procedure was simply to pack the preparation into an open wound, which would then heal from the inside out. There was no infection, and there was full restoration in animals.

Ideally, the preparation should be packed into the open wound as soon as possible after the injury. If this is not possible, an intervention is an option, even to cut open and apply this preparation with the deliberate intent of increasing the body's ability to repair from the inside.

Potential Role of Folic Acid:

In addition, however, the chicken feet preparation can be eaten as capsules or as mixed with other foods, an area that Robertson did not explore. Although many people would consider eating the feet themselves repugnant, some cultures do this and find this consumption regenerative and helpful.

This beneficial aspect relates to folic acid, an important nutrient involved in DNA synthesis and a many other physiological roles. For example, scientists have shown it to be important in preventing neural tube defects. It is one of the most important and flexible components of humic acids, key substances of soils and compost that have the ability to absorb and work with minerals and other substances. Overall, folic acid plays a critical role in regulation of healing in the body. Because there are small amounts of the nutrient in chicken feet due to soil contact, folic acid was consumed when native tribes ate chicken feet.

Conclusion:

It is time for us to open-mindedly revisit this simple, nerve-regenerating therapy. Clearly, it would be relatively easy for scientists to checkout the its potential using existing animal models and assessments for SCI. There is nothing to lose except our belief that solutions for complicated problems must also be complicated.

Sun Magazine **(8 March 1981)**

Some Nice Chicken... What ?

by

Frederick Kelly

Remeber when you were little and you got sick and your mother made a big steaming pot of hot chicken soup for you? Somehow, you always seemed to feel better after you ate it. It was silly, of course, and you chuckled over it years later. "Jewish penicillin", you called it. "Another of Mom's miraculous home remedies", you said. Now comes Dr Harry Robertson to tell us that maybe Mom was right after all. Maybe there is something to chicken soup's mysterious curative powers.

Dr Harry Robertso is the inventor of Revital, a product he unhesitatingly calls "one of the great breakthroughs in medical science in the last century". He claims Revital has the pwoer to heal the worst third degree burns imaginable without scarring and without skin grafting. Furthermore, he says, it will regenerate both muscle and nerve tissue.

"What I have done", Dr Robertson boasts, "is something that has never been done before. No one to my knowledge has ever proved that you could completely regenerate both muscle and nerve tissue quickly, cleanly, and painlessly. But I did it and I have the documentation to prove it and if I live long enough it's going to make me a Nobel laureate. In my opinion, this is a greater discovery than penicillin."

Nobody has ever accused Harry Robertson of false modesty when it comes to his achievements. But as James Joyce once observed, "A man of genius makes no mistakes". People are inclined to suffer his occasional boorishness because they recognize that behind the bluster and hype and the self-promotion beats the heart of a brilliant innovator. "Harry's problem", says his friend Jack Ridgway, "is that he's a jump ahead of most folks -- and doesn't know it".

Dr Harry Robertson is an energetic 69-year old Salisbury veterinarian who accidentally discovered Revital while he was looking for an inexpensive source of protein for 3rd world countries. As he tells it, he was working late in his lab one night when he spilled caustic acid on his hand. Since he didn't have a conventional burn remedy handy, he says he grabbed the first thing he could find -- a jar of his "liquid protein" -- and applied it.

To his utter amazement, the pain and the redness went away in about 10 minutes and there was no blistering the next day. From that point on, he began using the "protein" whenever he burned himself. He gave it to his wife, Thelma, and he handed it out to his friends and neighbors, all of whom, he says, achieved the same results -- a few minutes after they applied Revital, the pain went away. There was no blistering, no infection, and no scarring.

Ironically, Dr Robertson had to abandon his quest for a cheap source of protein after an even cheaper source -- soybeans -- was discovered. He had been using chicken byproducts -- specifically ground-up chicken feet -- but he says he couldn't compete with soy products. He turned, instead, to the manufacture of canned dog food.

He arrived in Salisbury, a major chicken processing area on the Eastern shore, in 1962, looking for a cheap, plentiful source of discarded poultry products to use in dog food. A retired army officer with 20 years of service in the Veterinary Corps, he was custom-packing canned dog food for a number of nationally known dog food companies, using a patented process he had invented a few years before.

After he got out of the business in the late 60s (he claims he "was squeezed out by a bunch of investment bankers carrying briefcases instead of guns"), he turned his attention to running a small animal hospital in Salisbury and perfecting Revital, so named, he says, because of its "revitalizing effect on human tissue". Whatever its effect, there's no denying that people are taken aback when they learn that the main ingredient in Revital is chicken feet. They find it slightly repugnant.

"I don't know why", Robertson says. "There's nothing wrong with it. It's a perfectly logical source. Chicken feet are nothing but amino acids and amino acids are the building blocks of the body. Hedck, I take a couple of tablespoons of powder every day and it's put about 8 pounds of muscle on my body. It's pure and clean and perfectly safe. There's nothing in Revital that can harm you".

The US Food and Drug Administration agrees. It approved Revital in 1978 -- not as a drug, strangely enough, but as a device, a "Class I device", the same lassification as that of ordinary baby powder. The FDA says Revital (like baby powder) can be sold over the counter without a prescription because it contains nothing harmful to a person's health.

Dr Robertson says Revital has "basically the same nutrients that cells need to rejuvenate themselves". He confesses he doesn't know exactly how or why it works, but the amino acids in it (there are 19, according to the label) probably "stimulate both the DNA and the RNA of cells", causing them to multiply and grow. It is not a protein, however, although he frequently refers to it that way.

Dr Robertson first became aware of the reparative effects of Revital while taking a course in burn therapy in Chicago. He became acquainted with a doctor who specialized in burn research. "He seemed upset one day and, when I asked him what was wrong, he said he was having problems healing 3rd degree burns on some of his experimental rabbits. He said the skin grafts dried out too quickly and wouldn't take".

Dr Robertson suggested Revital. The doctor agreed to try it, but midway through the procedure he ran out of grafts so he treated several of the rabbits with Revital alone. When he checked the rabbits a few days later he found that not only had the "Revital-ized" grafts held, but when he re-dressed the wounds of the rabbits that had been treated with Revital alone, he noticed also that healthy tissue was growing inside the burn area, something that is not supposed to happen in 3rd degree burns "because reparative cells normally don't migrate towards the center of the burn, they stop right at the edge"...

Later, the Chicago doctor used Revital to treat a young boy with severely burned legs. The youth "recovered completely", according to Dr Robertson, and in the process he discovered something else amazing about Revital. It stopped infections.

"In a majority of burn cases", Dr Robertson says, "victims die from infections, not the burns themselves, and infections are caused by decaying tissue. The greatest danger is that the dead tissue will get into the bloodstream and cause death so it is imperative to remove it before that happens. The process is called debridement and it can be excruciatingly painful because the skin is literally scrubbed away. In this case, however, there was absolutely no need to clean the wound. Revital did the job beautifully. It completely sterilized it within a day or two and the boy recovered nicely with a minimum of scarring".

A few years later, Dr Robertson treated a dog that had been hit by a car and was near death. The dog had been dragged under the car for several feet. Most of the thigh muscles had been ripped away, and a large part of the femur and hip joint were exposed. Dr Robertson says he told the owner it was "hopeless". He recommended putting the dog to sleep, but the owner pleaded with him to save it.

He says he told her the only thing he could possibly recommend was Revital, but he had never before used it on such massive injuries and could not guarantee it would work. She told him to do anything he could. As soon as he got the dog out of shock he saturated the wounds with the powder and bandaged the dog. Within an hour, he says, the dog "appeared to be experiencing little or no pain". When he redressed the wound a few days later, he says it was "perfectly clean" and seemed to be "healing nicely although it smelled terrible" (something which is not uncommon when using Revital on wounds).

Today, the dog is alive and well and "running faster than ever", according to her owners, Mr and Mrs Brewington. Mrs Brewington says the hair has grown over most of the wounds...

"I don;t know how it worked", Dr Robertson says, "but it did. The dog is vcertainly normal in every respect today, which flies in the face of everything I learned in veterinary school. Once nerves and muscles are destroyed, they're supposed to stay destroyed. They're not supposed to regenerate. But they do. When Revital is used, they grow right back good as new. That's what's so crazy about it. The dog's leg should have atrophied".

Allan Williams, who manages the bookstore at Salisbury State University, had an experience similar to the Brewingtons'. His dog, a shepherd named Lady, was accidnetally burned by boiling water. Mr Williams, who was one of Dr Robertson's assistants in the animal hospital at the time, says the dog had 3rd degree burns over almost a third of the lower part of her body and hind legs.

"The hair was gone and she was burned right down to bare tissue", he says. "Harry treated her with the powder every three days and after the first week you could see a noticeable difference. The skin was pink and healthy-looking. Her hair started growing back in 5 or 6 weeks. She didn't seem to be in any pain the day after the accident and she started eating right away".

Mr Williams says Lady, who is now 12 (she was about 3 when the accident occurred), completely recovered in about 9 weeks. He says her skin is in "perfect shape", although he can see a "slight difference in coloration where she was burned. "It's a bit lighter, but the skin is very soft and pliable, not at all like scar tissue". There's only a small patch where the hair isn't growing, which in itself is remarkable because hair normally does not grow on scar tissue.

Mr Williams remembers a couple of other "basket cases" Dr Robertson treated; in particular a poodle that was brought in with a cut pad. "Harry stitched it and bandaged it, but somehow the dog got the bandage off and chewed the foot off. All that was left was the bony structure of the foot. Harry packed it with Revital and made a cast for it and the dog grew a whole new foot".

Dr Robertson says he saved a cat's leg in a similar manner. The cat was brought to him with a gangrenous leg. It had been declawed, but the veterinarian who had declawed it apparently put the bandage on too tight, cutting the circulation. Dr Robertson says he packed the leg with powder and redressed it every few days and eventually the leg and foot grew back completely.

Mr Williams can recall only two of Dr Robertson's experiments with Revital that failed: "One time Harry took a section of bone out of an old cat to see it it would grow a new one, but it didn't work". Another time, "he tried to use the protein to grow hair. He's bald and he had me smear the stuff on his head every day for 6 weeks... [missing page in photocopy]

Meanwhile, much of the Salisbury medical establishment either disparages Harry Robertson or adopts a wait-and-see attitude. Ronald Davis, a dentist who started treating his patients with Revital about 6 years ago, says he thinks Dr Robertson may be onto something. He started using Revital primarily on diabetic patients, who are prone to develop dry sockets after extractions (their blood doesn't really clot), and he says he hasn't had a dry socket in 6 years.

Patients "healed faster, with a minimum of pain and virtually no inflammation" -- and he has had essentially the same results treating patients with periodontal disease. In most cases "the pain is gone and the tissue is pink and healthy" within 24 hours. Furthermore, Revital has "virtually eliminated the need for antibiotics" in periodontal cases.

Dr Richard Snyder, an associate of Dr Davis, says Revital "is effective in shrinking the size of periodontal pockets". He's also used it to treat abscesses and herpetic lesions and in every case, he says, the pain disappears almost instantly. "While I can't really say it heals faster", he adds, "it does seem to have a positive impact on pain".

Impressed as they are with Revital, Dr Davis and Dr Snyder are still not ready to mortgage the farm for it. They both believe it has to be studied further. "Based on what I've seen so far, it works, but I'ld like to see the mechanism involved", Dr Davis says. Adds Dr Snyder, "My guess is it works because we're putting the building blocks of the body right at the site of the problem. But I think that [hypothesis] should be tested".

At least 3 pharmaceutical firms are doing just that, although officially they deny it. A spokeman for one of the firms identified by Dr Robertson (and confirmed by Jack Ridgway) said that not only did the company not send a representative to Salisbury to study Revital, "We've never even heard of it". Another firm, which reportedly was preparing to have several pounds of the powder shipped to its labs for testing, said it had not yet decided to investigate it.

Why all the pussy-footing around? "Competition", confides a member of a natiowide drug chain's research and development team, who admits off-record that his company is interested in Revital. "If what this guy says is true, if this powder of his does half the things he says it does, he's sitting on a 7-figure deal -- and no company in its right mind is going to run around blabbing about it".

That may explain why commercial interests tread cautiously, but what about non-profit organization? Dr Robertson says hardly any of them have shown any interest and he wishes he knew why. Certainly it hasn't been for a lack of trying. He has lugged a suitcase full of video tapes and time-lapse pictures all over the country trying to drum up interest in Revital. "Most people", he says, "couldn't wait to get rid of me."

He says he went to the Army's Brooke Burn Center in San Antonio TX three times at his own expense and "barely got the time of day". On the last trip, he says, the colonel in charge "sloughed me offf to a major who said, I don;t know why they sent you to me, I'm getting out in two days". When he tried to show the director of the burn unit at the Crozer-Chester Medical Cneter in Chester PA, photographs of his work, he says, "The guy told me 'I'm not interested;', and he walked away".

He says he's contacted the University of California, U. of Maryland, and the U. of Nebraska, and tried to convince them to test Revital, but they turned him down cold. "I don't know why", he adds, "but I do know that if it hadn't been for Bill Crosby and Tony Silvetti and a few others, I'd be dead".

Bill Crosby is Col. William H Crosby, a renowned hematologist and senior investigator at the Walter Reed Army Institute of Research in Washington. Tony Silvetti is Dr Anthony N Silvetti, a Chicago physician and former US Navy doctor. Col Crosby says he used the powder for about 6 years while running a clinic in El Centro CA.

"I used it mainly in the treatment of indolent and infected wounds, primarily bedsores, that are slow to heal", he says. "It was astonishing. It cleaned them up and healed them in rapid fashion. I don't know why, but my hunch is it shortcuts the problem of nutrition. One problem in indolent wounds is the blood supply is inadequate so the wound is not getting the necessary nutrients to heal itself. Revital seems to put the nutrients 'where the action is'.

Dr Crosby is "sure Revital works", although he concedes he's seen Dr Robertson's photos of paw regeneration and is "not particularly convinced by them". Still, he says, while regeneration of muscles and nerves may be contrary to everything he was taught in medical school, "Every year I'm seeing things contrary to what I learned. So I've learned to keep my mind open. It may turn out that Harry's observations are reproducible and accurate. Certainly, from my experience, the powder does clean up infected wounds and it does seem to speed up the healing process".

Dr Silvetti is considerably less enthusiastic, although he believes Revital "should be given a fair trial". he says he's used it in a "limited number of cases and my experience has not been like I would have liked it to have been". He says he used it with "severely ill patients, who are not good patients to begin with, and the results were not that impressive. It didn't harm anyone, but there was not complete healing of lesions in some cases". He would like to see somebody study it further.

Dr Gary Gibbons, a surgeon at New England's Deaconess Hospital in Boston, says he 's been applying Revital in the treatment of foot ulcers (both diabetic and non-diabetic) for "about 3 months, but it's too early to make any report on it. We don't have enough experience with it yet".

Dr Andrew Munster, director of the Baltimore Regional Burn Center at Baltimore City hospitals, feels the same way. He says he's tried Revital, but is not yet prepared to say it works.

"I've used it on two patients with small leg ulcers, and it worked on one, but the other guy committed suicide before I could tell whether it had any effect. That's not enough experience to evaluate it". However, Dr Munster says he's impressed enough by the literature he's seen "to give it a chance", and he expects to begin using it shortly in large burn cases. "I don't expect miracles", he adds. "I'm looking for it to facilitate healing. If it does that I'll be satisfied".

Harry Robertson says not to worry, it will do that and more. Forget scars. Forget skin grafts. Forget infection, loss of fluids and amputation. Revital will take care of all those things -- plus it will regenerate nerves and muscles. And that's only the things Harry Roberton knows Revital will do. If someone wants to take the time and trouble to run some tests on it, he says, there's no telling what they might find. Maybe even a cure for... But that's another story.

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http://www.sciencedirect.com/science/article/pii/0305417984900032
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The effect of topical hyperalimentation on wound healing rate and granulation tissue formation of experimental deep second degree burns in guinea-pigs

by

Theodor Kaufman, Moisey Levin, Dennis J. Hurwitz
Department of Surgery (Plastic), University of Pittsburgh School of Medicine USA

Abstract

Revital, a product containing 19 amino acids, was applied to experimental deep second degree bums in guinea-pigs for 24 days, in order to assess the effect of this form of hyperalimentation on the healing process. Silver sulphadiazine cream served as the contralateral control standard. Epithelialization was faster in the silver sulphadiazine treated burn wounds, while contraction of both tested wounds proceeded at a similar rate. Revital significantly enhanced the formation of granulation and scar tissue in this burn wound model. These observations indicate that topical wound hyperalimentation promotes granulation tissue formation of experimental deep second degree burns in guinea-pigs.

Correspondence should be addressed to: T. Kaufman MD, Department of Surgery (Plastic), University of Pittsburgh School of Medicine, The Montefiore Hospital, 3459 Fifth Avenue, Pittsburgh, Pennsylvania 15213 USA.

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http://books.google.com/books?id=OuwDAAAAMBAJ&pg=PA28&lpg=PA28&dq=Robertson+Revital&source=bl&ots=mcEa6bfO9o&sig=lDkEi0bH2NAUet60rMPz1op9aK8&hl=en&ei=LvedTsbdIsqYiQLxuemVCg&sa=X&oi=book_result&ct=result&resnum=6&ved=0CD4Q6AEwBTgK#v=onepage&q=Robertson%20Revital&f=false

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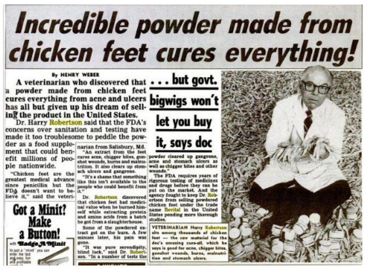

Incredible powder made from chicken feet cures everything!

... but govt. bigwigs won't let you buy it, says doc

By HENRY WEBER

A veterinarian who discovered that a powder made from chicken feet cures everything from acne and ulcers has all but given up his dream of selling the product in the United States.

Dr. Harry Robertson said that the FDA's concerns over sanitation and testing have made it too troublesome to peddle the powder as a food supplement that could benefit millions of people nationwide.

"Chicken feet are the greatest medical advance since penicillin but the FDA doesn't want to believe it," said the veterinarian from Salisbury, Md.

"An extract from the feet cures acne, chigger bites, gunshot wounds, burns and malnutrition. It also clears up stomach ulcers and gangrene.

"It's a shame that something like this isn't available to the people who could benefit from it."

Dr. Robertson discovered that chicken feet had medicinal value when he burned himself while extracting protein and amino acids from a batch he got from a slaughterhouse.

Some of the powdered extract got on the burn. A few minutes later, his pain was gone.

"It was pure serendipity, blind luck," said Dr. Robertson. "In a number of tests the powder cleared up gangrene, acne and stomach ulcers as well as chigger bites and other wounds."

The FDA requires years of rigorous testing of medicines and drugs before they can be put on the market. And the agency fought to keep Dr. Robertson from selling powdered chicken feet under the trade name Revital in the United States pending more thorough studies.

VETERINARIAN Harry Robertson sits among thousands of chicken feet — the raw material for the doc's amazing cure-all, which he says is good for acne, chigger bites, gunshot wounds, burns, malnutrition and stomach ulcers.

Got a Minit? Make a Button!

Regeneration of Mammalian Body Parts **[PDF]**

by

Bengtt Larsson

US 4455302
Medical protein hydrolysate, process of making the same and processes of utilizing the protein hydrolysate to aid in healing traumatized areas

1984-06-19
Inventor(s): ROBERTSON HARRY J [US] + (ROBERTSON, HARRY J)
Classification: - international: A61K35/12; A61K38/01; (IPC1-7): A61K37/00; C07G7/00 - European: A61K35/12; A61K38/01D

Medical Protein Hydrolysate is produced from the feet of young freshly killed poultry or other young freshly killed animal sources of protein which are sufficiently immature that the resulting protein lacks antigenic properties. The protein, thus produced, is an extract of polypeptides and amino acids having as little biological disruption as possible. It is in the form of a powder or a gel, each of which is suitable for topical application to living cells of animals and humans for aiding in healing. The process of production of the Protein Hydrolysate includes treating the washed and comminuted poultry feet or other source of protein with a dilute acid, preferably acetic acid, and drying under low heat conditions the resulting solution to a powder or to a gel. The process of using the Protein Hydrolysate including periodic topical application to a traumatized (wound) area. In the event that treatment is to be below the surface, an aqueous solution of the protein can be injected into the area to be treated.

BACKGROUND OF THE INVENTION

I have believed that there had to be a product that would create, within a traumatized (wound) area, conditions as close to fetal surroundings, as possible, so that the individual cells within this area would have the optimum chance for regeneration. Since rapidly dividing cells, in the embryo fetal complex, originate from a single fertilized cell, and then divide into specialized tissues, whether they be muscle, nerve, skin, etc. I have sought a protein source material which is readily available and inexpensive, being from an immature animal in which the antibodies were not well developed. I have found that any freshly killed, immature animal or poultry would give me an adequate product. Since poultry by-products were readily available, I felt this to be an ideal source.

The greatest hindrance to the regenerative healing of woulds appears to have been that of antigenicity. Thus, immaturity in the protein source is the most important factor in producing a product capable of simulating an embryonic condition adjacent to the wound and thereby inducing the cells to perhaps retrogress to an earlier state or stimulate the memory of the cells to produce other cells, capable of more regenerative repair or, at least, repair at a more rapid healing rate due to the fact that body defenses in such immature cells do not have the ability to reject foreign protein. For example, in dogs the body's ability to develop antibodies does not develop until 8-9 weeks after birth. In cats, 12-13 weeks and in humans, much later.

My Protein Hydrolysate, described hereinafter, is believed to possess the properties which I have described above.

SUMMARY OF THE INVENTION

Briefly described, my medical Protein Hydrolysate comprises the soluble polypeptides and soluble amino acid constituents of immature animal protein such as chicken feet and its mineral content, resulting from the hydrolyzing of the animal protein with a dilute acid, preferably a weak organic acid such as acetic acid, and the subsequent drying, or concentrating, of the resulting solution.

The process comprises first cleansing the raw material, such as the feet of eight or nine week old broilers, then comminuting this raw material and subjecting it to a dilute acid, under controlled pH and temperature conditions. The resulting solution is decanted, strained or filtered and then spray dried or otherwise dewatered or concentrated to a dry powder or dried gel.

In use, the powder is topically applied to a moist open wound, or is reconstituted with water and injected, with a syringe, into the area to be treated. The gel is used for the treatment of relatively dry areas and can be reconstituted from the dry powder or from partially dried gel.

DETAILED DESCRIPTION

I preferably used the feet of freshly killed immature broilers, or other sources of protein from immature freshly killed animals, as my raw material and extract therefrom, polypeptides and amino acids that are lacking in antigenic properties.

In so doing, I wash and comminute the raw material, then selectively dissolve the proteins therefrom, with as little biological disruption as possible, using a dilute weak organic acid, such as acetic acid or lactic acid, as my hydrolyzing agent, supplemented by controlled extraction temperatures. Hydrochloric and phosphoric acid have also been tried with less success. By far the best acid to employ is acetic acid. The solution thus formed is a liquid product which is then dried, either by spray drying or dewatering into a dried product, which can be reconstituted into a gel.

In more detail, I use young "broiler" chicken feet as they have sufficient immature protein and are cheap and abundant. After thoroughly washing the feet in water to rid them of dirt, debris and blood, I grind the feet through a 1/4 inch plate of a Hobart grinder. From 1/8 to 1/2 inch plates can be used; however, a 1/4 inch plate appears to provide the most efficient size grind for rapid and uniform extraction of the soluble proteins.

In a separate container, I make up a water solution of glacial acetic acid by adding the glacial acetic acid to the water to produce a first dilute acetic acid solution containing from about 1% to about 11/2% by weight, glacial acetic acid. Into this dilute acetic acid solution, on a one to one weight basis, I dump the ground feet so that the acid can break down or hydrolize the blood and other extraneous matter, this at room temperature, i.e., from about 70 DEG F. to about 90 DEG F. I allow the comminuted feet and dilute acetic acid solution to work overnight, i.e., eight to twelve hours, stirring it periodically so that it is well mixed. I then wash or flush the mixture with fresh water until the comminuted feet mix is clear of debris. This initial treatment or pretreatment with acetic acid solution is to remove blood, free fats and serum.

I then make up another mixture of glacial acetic acid and water so as to provide a second solution having a pH 4.6. The pH may run from pH 6.5 to pH 3.6 if desired. However, I have found that, where I have used these extreme ranges, resulting protein material is not as effective. The washed comminuted feet mix is then added to this second solution in a one to one ratio by weight and the resulting mix is heated to a temperature of between 130 DEG F. and 140 DEG F. and constantly stirred for about 30-40 minutes, but it can be comingled and heated for a shorter period of time, with a decrease in yield.

This solubilized mixture is then decanted or drawn off and sent through a centrifuge to remove most of the fat and particulate matter. The defatted centrifuged solution is then passed through a filter. So far, I have found that the best filter bed to use is "Speed Flow" diatomaceous earth, though I am sure there are other filters that would be equally effective.

I next allow the dissolved protein solution to solidify. I then skim off the remaining fats. To again solubilize this gelled protein, I once again heat it to 100 DEG F.-120 DEG F. so that it can be pumped. This mixture (solution) of amino acids and polypeptides generally runs from 4%-9% solids. If I want to make a gel of it, I dry the solidified (gelled solution) by low temperature air drying and reconstitute it when I need it by again bringing the solubilizing water up to 100 DEG F.-130 DEG F.

If desired, another or second extraction, using the second acetic acid solution (pH 4.6) on a pound for pound basis of the previously extracted ground feet and acetic acid solution. I extract for 30 minutes at 140 DEG F.-155 DEG F. and blend this mixture in with the other filtered and clarified protein solution, after first going through the same defatting and clarifying steps as on the first extraction. I have not found that this second product is as good as the first extraction as I think there is too much denaturation of the proteins, therein.

To produce the dry powder, the resulting solution is spray dried. The powder has an average particle size of from about 1 micron to about 20 microns.

The same procedure was followed with a solution of lactic acid, alsodiluted until the pH was about 4.6. The resultant powder was effective, but to a lesser extent than that produced with acetic acid. As is conventional, other weak organic acids could be used with similar results. The same occurred when hydrochloric and phosphoric acid were used.

A better understanding of the present invention will be had by reference to the following examples.

EXAMPLE I

100 pounds of frozen poultry feet, obtained from freshly killed commercial broilers, eight to nine weeks old, grown and processed in Maryland, U.S.A., were washed with water to remove coarse debris, dirt and blood. They were then ground using a Hobart Grinder with a 1/4" plate and this comminuted material was immersed in 100 pounds of a 1% solution of aqueous glacial acetic acid for a period of ten hours at room temperature. The mixture was stirred at least once per hour to maximize the area exposed to the dilute acetic acid.

Next the solution was drained from the comminuted feet by being poured onto a 1/32" mesch screen. The material on the screen was then washed with water until the wash water was clear. This resulted in 87 pounds of cleansed comminuted or ground broiler or poultry feet.

A first extraction was made up by mixing glacial acetic acid and water to produce a resulting solution having about 1% by weight, glacial acetic acid.

To 87 pounds of the first extraction solution was added the 87 pounds of cleansed comminuted poultry feet. The pH of the mix was then adjusted to a pH of 4.6 by the addition of glacial acetic acid. This mixture was then constantly stirred and brought to a temperature of about 130 DEG F. and maintained within the range of about 130 DEG F. to about 140 DEG F. for about 1/2 hour so as to dissolve the soluble protein from the ground material.

This hot solubilized mixture was then passed through a milk centrifuge so that the fat was discharged from the solution and the solids or non-solubilized material removed therefrom.

Thence, the centrifuged solution was filtered by being passed through diatomaceous earth (Speed Flow--a Dow Chemical[Grefco] product). At this stage the solution was a clear solution containing approximately 5.7 pounds of the polypeptides and amino acids mix.

While still in its liquid state, the clear solution at a temperature of from about 100 DEG F. to about 120 DEG F. was passed through a spray dryer. The inlet temperature of the air was about 250 DEG F. and the outlet temperature was about 120 DEG F. The resulting non-antigenic Protein Hydrolysate powder, being hydroscopic, was then immediately placed in an air tight, moisture impervious container so that it would not cake.

The resulting powder assayed as follows:

pH 4.6

water 7.9

Total N 15.73

ash 6.10

Amino acid distribution

aspartic acid

5.51

glutamic acid

10.24

histidine 0.81

lysine 3.80

argenine 8.01

hydroxylysine

1.19

hydroxyproline

10.14

threonine 2.26

serine 2.86

tyrosine 0.73

glycine 23.41

1/2 cystine

0.32

proline 11.83

alanine 9.14

valine 2.43

methionine

1.24

leucine 3.00

isoleucine

1.76

phenylalanine

2.23

EXAMPLE II

The procedure of Example I was repeated but instead of spray drying, the filtered solution was dried in dry air at a temperature of from 65 DEG to 75 DEG F., until it contained about 5%, by weight, moisture.

The resulting Protein Hydrolysate material weighed 6.1 pounds and was placed in an airtight, moisture impervious container.

The material was later mixed with water to produce various samples of gels containing from about 15% to about 30%, by weight, of the material. The water was preheated to from about 120 DEG F. to about 130 DEG F. and the material added to the warm water. The gels were kept under refrigeration.

In Examples I and II a Sharpless centrifuge or cream separator with fixed parts was used. A Bowen spray dryer was used in Example I.

In the procedure of the Protein Hydrolysate described above, i.e., by extracting the polypeptides and amino acids through the use of acetic acid as a solvent for the extracted proteins, the proteins are broken down from their complex protein structures to the simpler structures. It is important, for best results, that the solids, i.e. minerals, which precipitate out as the filtered hydrolyzed protein is dewatered and cooled be retained in the resulting product. Protein Hydrolysate, without such minerals, while causing excellent repair of a wound, may result in concomitant hyperplasia which should be debrided to bring it in line with adjacent tissue. Thereafter, the wound will slowly continue to repair.

In other words, I have found that it is not desirable to remove the precipitated minerals which precipitated out as the extracted (solubilized) proteins lose moisture and that it is not desirable to filter the product after it is in concentrated form. When the non-precipitated mixtures of Examples I and II were used, the hyperplasia of regenerating tissue disappeared and remarkable regrowth of not only muscle tissue, but skin and nerve tissue, also, regenerated and returned to its normal position and contour and function, indicating that it restored memory to the tissues.

TREATMENT USING MY MEDICAL PROTEIN HYDROLYSATE

My Protein Hydrolysate is particularly useful for the treatment of burns, particularly third degree burns. The dry powder is sprinkled over the effected area and combines with the moisture in the tissue to provide a protective cell stimulating coating. The gel is preferably used for first and second degree burns, where a relatively dry area is involved. Pain is usually stopped in three to five minutes after application to the effected area. I have found it preferable to apply a sprinkled layer of dry powder or gel to the burned area about every third day.

In the case of third degree burns, the powder allows for the fiberblasts or regenerative cells to continue to grow out from the center and edges of the wound so that skin grafting is materially reduced or entirely eliminated. Furthermore, the new skin even appears to be formed from normal cells and hair actually grows from the new skin in a normal way.

In most cases of wounds in animals treated with my material, either spray dried or in gel form, bacterial infections have generally been eliminated after the first three days, and in all cases, infection appeared to be eliminated at the end of the seventh day (end of second application). This has been demonstrated with gas gangrene (clinically), massive disruptive wounds resulting from auto and other traumatic disruptions of the skin and underlying muscle, nerve and vascular tissues.

When using my material topically applied, either in spray dried powder or gel form, the hyperplasia of regenerating tissue disappeared and remarkable regrowth of not only muscle tissue, but skin and nerve tissue, also, regenerated and returned to its normal position and contour and function, indicating that it restored memory to the tissues.

Bed sores which have existed for some time have healed quite well after treatment with my material. Indeed, even cells which appeared to have died around a wound were restored to normal.

COMPARATIVE TEST

To demonstrate the importance of using immature animal tissue and particularly immature poultry feet, the following test was run. Four cats of like weight, maturity and state of health were operated on and three muscles of the upper right thigh were severed: the Bicepts femoris, the Vastus lateralis and the Semitendinosus. Each cat was treated with an agent topically applied to cover the wound twice a week until all wounds healed.

The first cat was treated with protein hydrolysate prepared according to Example II above. Its wounds healed in 21 days without complications. It walked without a limp in 7 days.

A second cat, treated with a protein hydrolysate prepared in an identical manner from the feet of chicken about one year old. Healing took 33 days and hyperplasia developed on the 8th day. Normal walking occurred only on the 15th day.

A third cat was treated with a prior art protein hydrolysate, hydrolysed casein, a Borden product. It developed hyperplasia on the 7th day and a secondary infection, both of which persisted until final healing at 33 days. This cat limped until final healing.

The fourth cat, treated with the broad spectrum antibiotic 5-Nitro-2-fureldehyde semi-carbazone ("FURACIN", a product of Eaton Laboratories). Healing took 33 days. A lesser amount of hyperplasia was noted and the cat walked with a limp for the entire period.

The third and fourth cats also exhibited progressive atrophy of the muscles posterior to the incision continuing until the femur could be palpitated.

This test demonstrates the effectiveness and advantage of protein hydrolysate prepared according to the present invention and particularly speed of recovery, lack of infection absence of hyperplasia and full return of muscle function.

It is thus seen that the therapeutic agent of the present invention, i.e. my medical Protein Hydrolysate, is a hydroscopic mixture of polypeptides and amino acids. It appears to have the fantastic ability to create, around a wound area, conditions that allow true tissue regeneration, this is the total absence of antibodies, even in the most critically infected wounds.

Preferably, the wound is heavily covered with my powder or gel. When powder is used, the area must be moist so that the powder can stick. No adverse tissue reaction has been observed in any treatment using my Protein Hydrolysate.

It is desirable to cover the wound with a non-adhering dressing (Telfa) to keep the powder/gel in contact with the wound. The treatment of the wound with my material should be repeated every three or four days.