PREFACE

The following is a study in which we used a growth hormone free enhanced whey protein concentrate (34%) to decrease the dormancy period after the hair transplantation. The background on this is that we suspected that whey protein isolate had caused premature hair loss in hundreds of patients interviewed in twenty years of practice, and that anabolics in general will elevate testosterone and DHT levels causing premature hair loss. The anabolics include but not exclusive ingestible as creatine, andro, testosterone patches, steroids, growth hormone, and fat burners which change the metabolism. Whey protein is derived when milk is separated into casein and fat soluble whey protein. Whey protein consists of lactose, minerals, calcium, phosphate, lacto albumin, lacto globulin which is found in whey protein concentrate. This is further processed by various filtration methods to create Whey protein isolate (80%-100%), which has a higher amino acid content removing the milk sugars and minerals versus the more natural whey protein concentrate (WPC). One study shown below specifically connects branched chains amino acids to increased testosterone production. In fact, on the weight lifting websites, there are pages of literature showing how they chemically engineer whey protein isolate to develop stronger bigger muscles. By using a growth hormone-free whey protein concentrate formula (34%) we are using a product with a lower amino acid count which we thought would be less androgenic but the patients could still work out without the side effect of premature hair loss. We enhanced the WPC with a variety of amino acids, vitamins and minerals. Our results for non transplanted hair are posted on our website but we had an unusual and unexpected side effect. When the hair transplant patients were given this product 5 days after surgery, their transplanted hair grew in faster than expected. Please review the following studies in which whey protein isolate may boost the testosterone level.

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How Accelerated Follicular Restoration™ (AFR™) Reduces the Length of the Telogen (Dormancy) Phase after a Hair Transplant

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ABSTRACT

After a hair transplant, the transplanted hair follicles enter the dormancy (telogen) phase for 3 - 6 month before they start to grow (anagen phase). Full growth is usually achieved in 10 - 12 months. Until now, nothing has been known to reduce the length of this dormancy phase, nor to eliminate this phase. An all-natural approach to reducing or eliminating the telogen phase would be highly valued by hair transplant patients seeking faster results. Can a special whey protein concentrate formulation reduce the length of the dormancy phase after a hair transplant?

The growth hormone-free whey protein concentrate formulation (34%) used in this study contains special vitamins, minerals, herbs and amino acids. This study of 115 men and women who took the enhanced whey protein concentrate (referred to as EWPC) as directed immediately 5 days after a hair transplant revealed that all of them—100%—had hair starting to grow from the transplanted follicles of 1-2 hairs just 6 weeks (1.5 months) after their hair transplant. At 12 weeks (3 months), all these subjects (100%) had at least 3/4" length of 1-2 hairs in the transplanted area. Combining a hair transplant with the EWPC to decrease the dormancy period is called Accelerated Follicular Restoration™ (AFR™). In a follow-up study consisting of a subset of 52 patients using EWPC with measurements taken at 5, 6 and 7 months after transplant, 10% had complete growth by 5 months. An additional 79% (89% total) had complete growth by 6 months, and 11% (100% total) had complete growth by 7 months.

The 115 controls, who had a hair transplant without taking the EWPC, had the typical results with their hair transplant: little or no significant growth at 6 weeks and little or no significant growth at 12 weeks, with growth starting after that time. Both groups were prescribed finesteride 1mg daily p.o. 5 days after surgery and topical Rogaine 2% one month after surgery. In the follow-up study using 48 controls, 67% had 50% growth at 6 months, and 33% had 40% or less growth at 6 months; at 9 months, all the controls had complete growth.

EWPC is the first product known to reduce the length of the telogen phase after a hair transplant in some individuals.

INTRODUCTION

After a hair transplant, the transplanted hair follicles enter the dormancy (telogen) phase for 3 - 6 month before they start to grow (anagen phase). Full growth is usually achieved in 10 - 12 months. Until now, nothing has been known to reduce the length of this dormancy phase, nor to eliminate this phase. Can a special whey protein concentrate formulation reduce the length of the dormancy phase after a hair transplant?

When hair follicles are transplanted from one part of the scalp to another, the hair is trimmed before being transplanted. Any hairs that remain in the transplanted follicles usually fall out due to shock loss, and the follicle enters the telogen phase. The hair transplant patient must wait at least 3

- 6 months before seeing hairs grow in any of these transplanted follicles. In rare cases, growth happens sooner. The hair transplant takes full effect 10 - 12 months after the surgery.

People seeking hair transplants are looking forward to the benefits of a fuller head of hair. Waiting up to one year for complete results reduces the time that patients can enjoy the benefits of their transplant. Reducing this waiting period would be highly sought by hair transplant candidates. On the surface, drug research may seem appropriate for reducing the hair transplant dormancy period. So far, no drug has been shown to decrease the dormancy period of a hair transplant. However, drugs run the risk of side-effects. Patients worry about the possibility of doing more harm than good. An all natural, proven approach to accelerating the results from a hair transplant would likely have more acceptance and higher compliance than a drug.

Hair is made from nutrients in the body, and nutritional deficiencies can cause hair damage and hair loss. For example, biotin deficiencies have been linked to hair loss and skin disorders,[1][2][3] and sufficient levels of the B vitamins are necessary for hair health and growth.[4]

Many Western diets are lacking in nutrients.[5] . The whey protein concentrate formulation utilized in this study contains structural nutrition and proteins to help make hair stronger, longer, healthier and with less breakage. It also contains nutrients and herbs specifically selected for their positive effects on hair, including these nutrients per 32 g serving:

- Niacin (vitamin B-3) - 200% DV (Daily Value) - improves circulation[6] including blood flow in the scalp
- Folate - 100% DV - a B vitamins to help reduce the impact of stressors[7]
- Vitamin B-12 - 100% DV - a B vitamins to help reduce the impact of stressors[8]
- Biotin - 833% DV - Deficiency can cause hair loss(REF); abundance can help hair growth[9]
- Zinc - 133% DV - Enhances immune function, which can stimulate hair growth[10]
- Manganese - 100% DV - essential to proper hair growth; deficiency is associated with hair loss[11]
- Fo-ti Root (Ho Shou Wu or Polygonum multiflorum) - a popular Chinese herb traditionally used for many reasons, including to darken pre-mature gray hair[12], hair darkening, hair thickening and hair regrowth.[13]
- Kudzo Root - Chinese herb,[14] the second-richest plant source of isoflavenones which researchers believe may have a positive effect on blood flow and microcirculation[15]
- Pumpkin Seed - may help regulate testosterone levels[16][17][18]
- Honeysuckle Flower - Helpful for skin health[19]

- Chrysanthemum Flower - Used in Chinese medicine[20] - may have anti-inflammatory properties[21]
- PABA - may help restore graying hair to its original color[22]

EWPC contains the following amino acids: LMethionine, L-Cysteine, Silica[23], L-Cystine, L-Isoleucine, L-Arginine, L-Leucine, L-Lysine, L-Phenylalanine, L-Threonine, L-Valine, L-Aspartic acid, L-Serine, L-Glutamic Acid, L-Proline, L-Glycine, L-Alanine, LTyrosine, L-Histidine. Amino acids are the building blocks of the body, including hair.[24]

The subjects in this study were instructed to take EWPC immediately following their hair transplant each day for at least 3 months. Of the 115 subjects in the study group, 85 had their first hair transplant, and 30 had their second ("second sitting") or subsequent hair transplant.

This study aims to demonstrate that taking EWPC reduced the telogen phase after a hair transplant, therefore achieving results more quickly using an all-natural approach.

MATERIALS AND METHODS

EWPC was used in this experiment. EWPC contains whey protein concentrate, and was free from whey protein isolates and growth hormones. The supplement contains additional vitamins, herbs and amino acids.

EWPC Nutrition facts. Serving Size: 1 Scoop (32 g).

	Amount Per Serving (1 Scoop)	% Daily Value
Calories	150	
Calories from Fat	8	
Total Fat	1 g	1.35%
Cholesterol	5 mg	1.83%
Total Carbohydrates	11 g	3.66%
Protein	14 g	26.40%
Niacin (as nicinamide)	40 mg	200%
Folate (as folic acid)	400 mcg	100%
Vitamin B-12 (as cyanocobalamin)	6 mcg	100%

Biotin	2.5 mg	833%
Pantothenic acid (as D-calcium pantothenate)	9 mg	90%
Iodine (as potassiumiodide)	100 mcg	67%
Zinc (as zinc oxide)	20 mg	133%
Manganese (as manganesecitrate)	2 mg	100%
PABA	30 mg	**
Proprietary Blend	255 mg	**

** Daily Value Not Established * Percent daily values based on a 2,000 calorie diet.

L-Methionine, L-Cysteine, Fo-ti Root (Ho Shou Wu), Kudzo Root, Pumpkin Seed, Honeysuckle Flower,

Chrysanthemum Flower, Silica, L-Cystine, L-Isoleucine, L-Arginine, L-Leucine, L-Lysine, L-Phenylalanine, LThreonine, L-Valine, L-Aspartic acid, L-Serine, L-Glutamic Acid, L-Proline, L-Glycine, L-Alanine, L-Tyrosine, L-Histidine

Calcium -- 28%	Iodine -- 33.5%
Potassium -- 3%	Sodium -- 2%
Phosphorus -- 24%	Magnesium -- 4%
Chlorophyll (none in vanilla flavor) -- **	Chloride -- 1%

** - daily value not established

Other Ingredients: Whey protein concentrate, natural flavors, stevia and xylitol

Flavors: chocolate, vanilla

EWPC is free of many common allergens: no wheat, no gluten, no soy, no eggs, no nuts, no peanut oil, and no tree nuts. (Whey is a milk product.)

EWPC has no artificial sweeteners, no xantham gum, no MSG, no artificial colors, and no artificial flavors. It is sweetened with all-natural stevia and xylitol.

The subjects were adults aged 20 to 72. The study group was composed of 21% women and 79% men. They were selected at random from a group of patients seeking hair transplants. The subjects were not compensated, and were given a supply of EWPC. They were all healthy with no serious underlying medical conditions. A full medical history of each subject was taken. They did not have any underlying medical conditions at the time of the hair transplant that would adversely affect their hair. The subjects did not have thyroid problems, iron deficiency and/or anemia.

Additionally, these subjects were also not taking any lifestyle products that might adversely affect their hair, such as Whey Protein Isolate (WPI), using testosterone patches, or ingesting or injecting growth hormones, fat burners , fad diets, soy products, creatine, or anabolics. All subjects were screened for allergies to Iodine, PABA, taking sulfonamides, pregnant, lactating or have liver disease, drink excessive alcohol, smoke, uncontrolled diabetics, lactose intolerance. All were told not to use any other hair vitamins especially those with biotin because we do not want them to exceed 5 mg day.

All subjects were given our normal preoperative sheet of avoiding aspirin, alcohol, spicy foods, vitamins so as to avoid bleeding and to do a 2 week vigorous massage on the top and back of their head with a connair massager for maximum elasticity and blood flow. All subjects were treated with slit incisions with blades at various sizes. At no time was a 16 gauge needle or punch utilized.

The subjects took EWPC daily for a minimum of 3 months. They were instructed to ingest 2 scoops (64 g) of EWPC in water or a beverage each day.

Six weeks after their hair transplant, each subject was contacted and asked if they had any hair growth in the transplanted area (the transplanted hair follicles). These same subjects were also questioned about the length of their transplanted hair 3 months (approximately 12 weeks) after their hair transplant.

RESULTS

All 115 of the subjects (100%) in the study group who complied with the instructions had 1-2 hairs starting to grow in the transplanted area 6 weeks after their hair transplant. The control group that did not take EWPC did not have hair starting to grow from the transplanted hair at 6 weeks.

Three months (approximately 12 weeks) after their hair transplant, all the subjects (100%) had significant growth of at least 3/4" length of hair in the transplanted area of 1-2 hairs. The transplanted hair of the control group had little or no significant growth.

When 52 of the patients from the original study were measured at 5, 6 and 7 months after transplant, 10% had complete growth by 5 months. An additional 79% (89% total) had complete growth by 6 months, and 11% (100% total) had complete growth by 7 months. A control group of 48 patients who did not take EWPC 0% had complete growth at 6 months, 67% had 50% growth at 6 months, and 33% had 40% or less growth at 6 months. At 9 months, all controls had complete growth.

Note: During interviews, many patients commented that they were pleased to see hair growth so quickly after their hair transplants, and that they did not have a long waiting period before getting results.

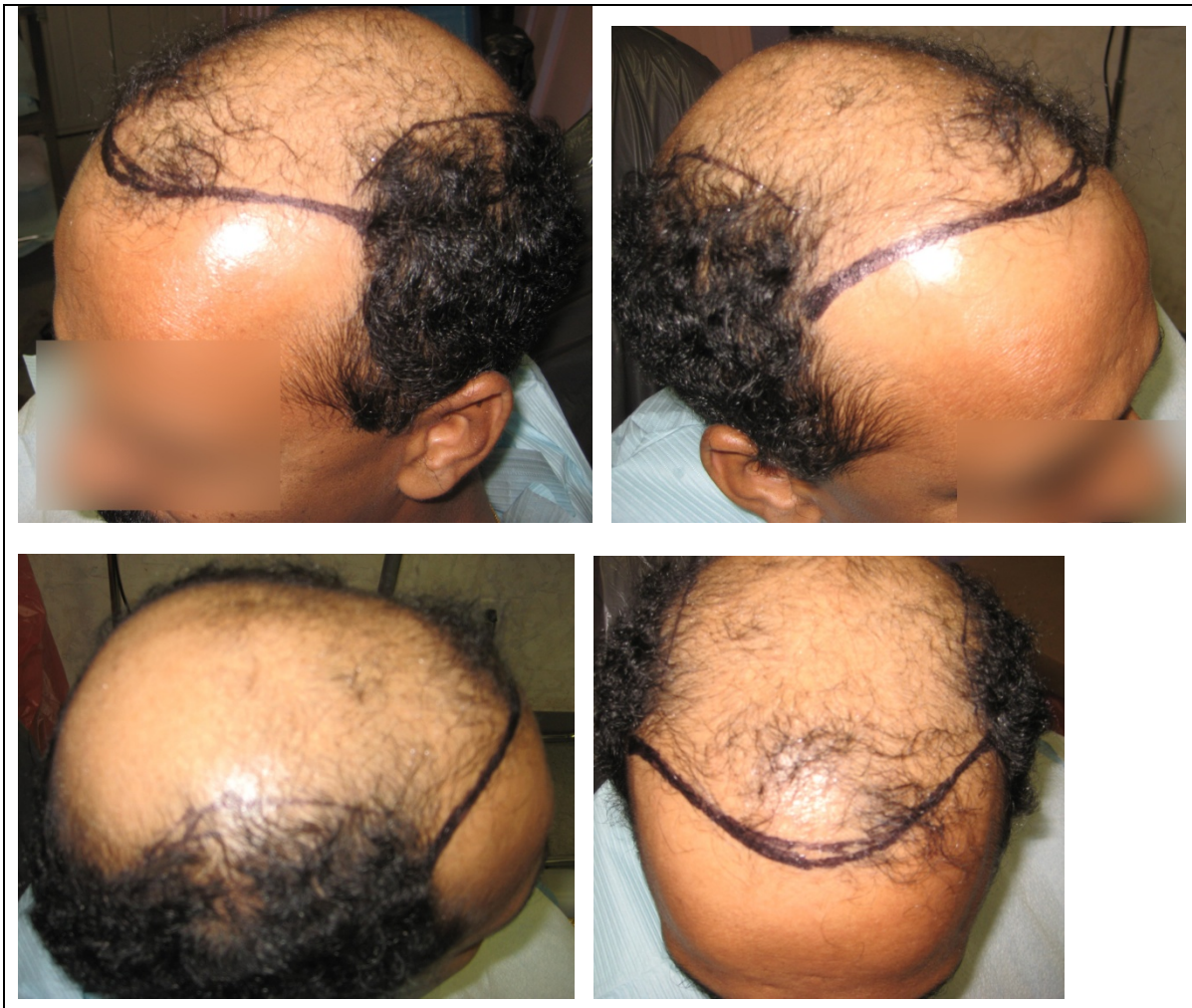
Special Case

Of the original 124 study subjects, 9 dropped out of the study because they did not comply with taking EWPC, due to lactose intolerance or not wanting to follow the protocol. One of these subjects took half the recommended amount of EWPC mixed with Whey Protein Isolate (Whey Protein Isolate may be linked to hair loss and hair damage).

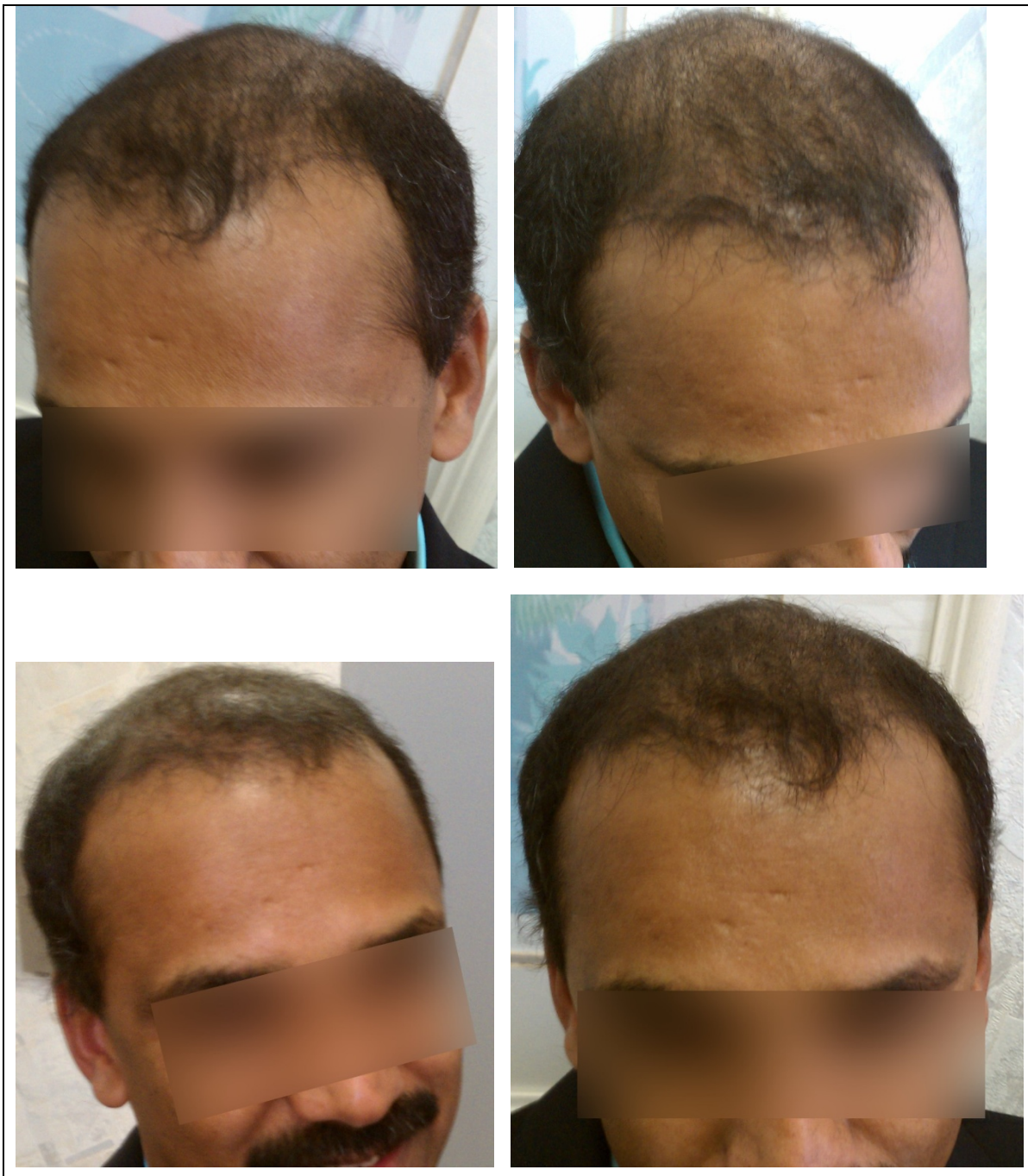
PHOTOS AND TABLES

Photos

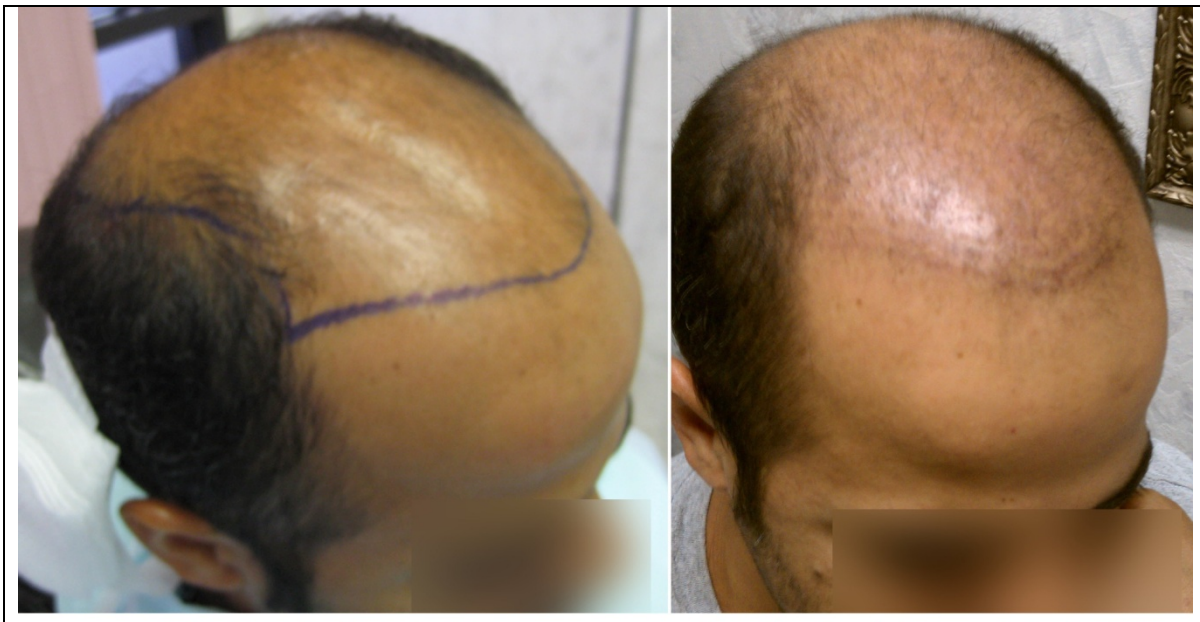
Shown are photos of actual patients. All photos are un-retouched and at no time did the patients use any type of topical powder to mask their scalp.



Clinical study patient 12 - Before



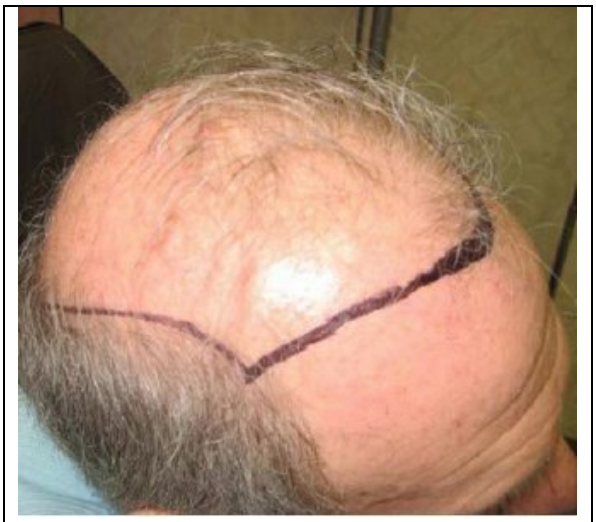
Clinical study patient 12 - 3 months after hair transplant and EWPC



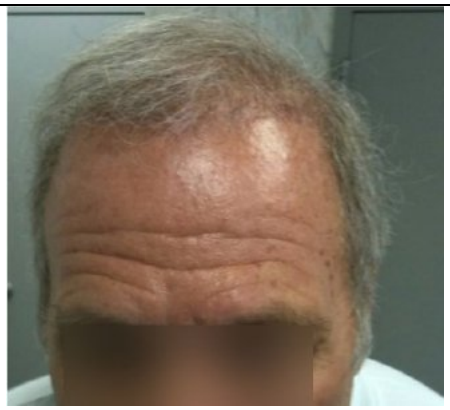
Clinical study patient 6: Before

3 months after hair transplant: No EWPC

Control - Hair transplant without EWPC shows little significant growth after 3 months



Clinical study patient 5 - Before



Clinical study patient 5 - 4 months after hair transplant and EWPC

Clinical study patient 32 - Before

Clinical study patient 32 - 6 months after hair transplant and EWPC

Tables

Table 1: Post-Hair Transplant Growth of Transplanted Hair		
Group	Growth starting of 1-2 hairs appearing 6 weeks post-transplant	Significant growth of 1-2 hairs at least 3/4" 12 weeks post-transplant
Took formulation n=115	100%	100%
Control - no formulation n=115	0%	little or no significant growth

Table 2: Medium-Term Follow-Up Study of a Subset of 52 Patients - Post-Hair Transplant Growth of Transplanted Hair				
Group	Complete Growth at 5	Complete Growth	Complete Growth at 7	Complete Growth

	Months	at 6 Months	Months	at 9 months
Took formulation n=52	10%	89%	100%	
Control - no formulation n=48	0%	0%*		100%

*Note: 67% of the controls had 50% growth at 6 months; 33% had 40% or less growth at 6 months

DISCUSSION

The growth hormone free whey protein concentrate formulation was shown to significantly reduce the length the dormancy (telogen) period after a hair transplant from more than 12 weeks to 6 weeks. Faster results after a hair transplant have not been proven by any other therapy in the hair transplant field.

Clearly, nutritional supplementation can have a strong positive impact on the speed of results after a hair transplant. EWPC contains additional nutrients that may be associated with improved hair, including biotin, B vitamins, zinc, and an amino acid blend. EWPC contains the Chinese herbal remedies Kudzo Root and Fo-ti Root (Ho Shou Wu) which are traditionally used for many ailments including hair problems. The formula also includes pumpkin seed, honeysuckle flower and chrysanthemum flower.

In addition to the natural form of whey and the extra ingredients, EWPC is a completely natural product, with no artificial sweeteners, no xantham gum, no MSG, no artificial colors, and no artificial flavors. It contains the natural sweeteners stevia and xylitol.

While this study did not individually examine each ingredient, clearly the EWPC significantly accelerated the results after a hair transplant for all study participants. They started growth around 6 weeks, while the controls who did not take EWPC had the typical results, with hair growth starting after 12 weeks. 89% of the subjects who were studied for a longer time period had complete growth by 6 months; the controls who did not take EWPC had less than 50% growth at 6 months and did not have complete growth until 9 months after their hair transplant.

In conclusion, EWPC reduces the dormancy period after a hair transplant, thereby accelerating results.

REFERENCES (LITERATURE CITED)

All footnotes in the study can be found on www.drshapiroshairinstitute.com.

The author has a conflict of interest in these studies because he has a patent pending on the product. Also to be noted is that we are using the EWPC for shock loss after a hair transplant on existing non transplanted hair but studies have not yet been conducted on this application. We also are using EWPC to maintain existing non-transplanted hair--please see our study on whey protein

isolate (WPI) vs. whey protein concentrate (WPC) and further updates and pictures on AFR at www.drshapiroshairinstitute.com.

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