

## Tokyo Hair Loss Conference!

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### Special Events

Tokyo Hair Loss Conference! New discoveries in Hair Loss Research! New treatments which are showing promise. The June 2001 Hair Loss Conference in Tokyo Japan will be presenting the results of over 170 studies related to hair loss, and we have them all for you here...

### June 2001 Tokyo Hair Loss Conference     June 13 - 15, Tokyo Japan

The Third Intercontinental Meeting of Hair Research Societies will be occurring 13th - 15th of this month in Tokyo, Japan. Researchers from all over the world will be gathering at the Four Seasons Hotel Chinzan-So to present the findings of over 170 different hair loss related research studies and abstracts conducted over the past ~ year ~. This meeting represents the largest triennial gathering of hair societies in the new millennium, and provides a unique opportunity for scientists and clinicians interested in hair biology and disorders to exchange information, compare study results, and interact.

The keynote lecturers will be Dr. M.J. McPhaul and Dr. I. Satokata. The scientific organizing committee, with Dr. S. Takayasu as the chair, has prepared four workshops for the different fields and two luncheon seminars on androgenetic alopecia. The workshops will provide the many researchers present with updated information on the hair cycle, stem cells and morphological and molecular biological approaches. The abstracts submitted by the researchers planning to attend were reviewed by a committee of 10, and separated based upon categories of plenary, concurrent and poster presentations according to the scores they received from the ten reviewers.

### The Myriads of New Study Results

HairlossTalk got its dirty little hands on the entire list of abstracts for the over 170 study results to be presented at the Tokyo conference. Below, we have extracted 64 of the studies we feel are of significance to you. This mountain of new information is an invaluable resource. Do not miss these! There are jewels of information throughout the list, such as... *New Discoveries, New Research, New Tools, Clinical Trial results for New Treatments, Herbal treatments which showed success in clinical trials, New suggestions on combination treatments based on actual FACTS, and much more.* Though it may seem like nothing is happening in the world of hair loss, every day that goes by there are hundreds of researchers compiling information and making small new discoveries which will ultimately lead to a cure.

You are encouraged to bookmark this page, and return here periodically until you've had a chance to read through all of the items below. We cannot stress to you how interesting, important, and relevant nearly all of these studies are. There is something new found in almost every one of them.

Please find a topic of interest to you, and click the link to view the full study abstract. We have included a "User Friendly" description of each for those of you who are less scientifically oriented, and just want the bottom line.

- Long-Term (5 Years) Multinational Experience with Finasteride 1-mg in the Treatment of Men with Androgenetic Alopecia (Male Pattern Hair Loss) A review with a cup-half-full bent on the results of the 5 year trials. Overall, Propecia continues to perform well into year 5 of use. Nothing but good news here.

- **Irreversibility of Hair Follicle Changes after 30 Months of Androgenetic Alopecia** Study performed by Nioxin Research, Inc, providing evidence that permanent changes in follicular structure and health (perifollicular fibrosis) can begin to occur in men experiencing hair loss, if they do not begin treatment within 30 months of first noticing signs of hair loss. Conversely, starting treatment earlier than 30 months should prevent irreversible collagen changes which can lead to loss of normal blood supply, miniaturization of the follicles, and disruption in the normal growth/resting cycles.
- **Study Abstract** Konstantinova N, Korotkii N.G, Sharova N, Barhunova E, Gaevski D. Nioxin Research Inc, Atlanta, USA Moscow Medical University We studied horizontal and vertical biopsy from 15 Caucasian 24-41 year old males diagnosed with bitemporal recession Androgenetic Alopecia (AA) for 1.5 -18 years (average 7.4 years). All 15 biopsies were stained with H&E, Van Gieson and with other collagen specific stainings.
  1. Eleven pts with AA longer than 3 years had perifollicular fibrosis - collagen fibers were compact and formed a small scar-like formation around each anagen hair follicle(HF). Two patients - 33 year old with 18 month AA and 23 year old with 20 month AA did not have these hair follicle changes. Two 26-year-old patients with 30 and 36 month AA respectively were found to have some not so severe collagen fiber changes.
  2. Infundibulum of HF dilatated 124-192 mm and most of them covered with keratinized plug lacking normal hair shaft growth.
  3. Decreased number of hair follicles 1.75-2.45 per sq. mm from 3.5-5 per sq. mm in control group.
  4. None of anagen HF was situated in subcutaneous fat.
 We showed a correlation between length of the AA and severity/ thickness of perifollicular fibrosis. The result of this study is that any treatment of AA is recommended to start earlier than 30 months from first signs of AA. This should prevent irreversible collagen changes associated with "fibrotic incapsulation" of most anagen HF in involved areas, which usually leads to loss of normal blood supply, innervation, and subsequent miniaturization and prevention of hair from normal cycling.
- **Effects of Finasteride on Apoptosis and Regulation of the Human Hair Cycle** Apoptosis is the process by which normal healthy follicle cells begin to disintegrate into particles that are ultimately discharged by the body. This process has been shown to be a common factor in the follicle health of men experiencing hair loss. This study sought to determine the effect Propecia has on the levels of Caspases (proteases that cause hair cells to die - Apoptosis), versus levels of chemicals which inhibit this process, called XIAP and FLIP. Before taking Propecia, there was an increase in Caspases (cell death initiators) and a decrease in XIAP (cell preservation chemicals). After taking Propecia for 6 months, both Caspase and XIAP levels had returned to that of a normal human being not experiencing hair loss. Further, they sought to show exactly how caspases affect the hair follicle, and it was shown that once initiated, the process of cell death affects many functions related to hair growth, including keratinocytes, melanocytes, the dermal papilla, and derma fibroblasts.
 **Conclusions:** The use of Propecia effectively eliminates the processes leading to cell death in follicular functioning, and promotes anagen, active growth in the hair cycle. (You may have known that already, but now you know why!)
- **Treatment of Androgenetic Alopecia with Combination Therapy of Oral Finasteride, Topical Minoxidil, and Tretinoin** Previous studies have been done combining topical Minoxidil 0.5% with topical Tretinoin 0.025%. This study sought to evaluate the results of combining Minoxidil 3%, Tretinoin, and Propecia 1mg per day. 65% of patients had excellent or good results after 1 year of use, and only 5% of patients did not respond at all. Sexual dysfunction and skin irritation was noted in 5% of patients.
 **Conclusions:** The combination of Propecia, Minoxidil 3%, and Tretinoin 0.025% was more efficient at hair growth than using either of these treatments alone.
- **Androgenetic Alopecia and Its Relationship with Testicular Cancer** Two men participating in a hair loss study expressed that they'd had Testicular cancer in the past. The researchers decided to evaluate a group of 144 testicular cancer patients to see if there was any association between extent of hair loss and age. There were four types of testicular cancer represented: Teratoma, Seminoma, mixed Seminoma/Teratoma, and Leydig Cell)
 **Conclusions:** There was a significant increase in mild hair loss in men with one type of testicular cancer - Seminoma. This implies that balding tends to occur earlier in men predisposed to Seminoma testicular cancer.
- **Perception of Men with Androgenetic Alopecia by Women and Nonbalding Men** This one is easy to read, as is. Click above.

- **Investigation of the Systemic Bioavailability of 5% Minoxidil Topical Solution in Young Males with Early Androgenetic Alopecia** Study done to assess whether Males under 18 are at an increased risk of absorbing Minoxidil into their systems, and the consequent level of safety in use of 5% Minoxidil use for this age group. Basis of safety was centered around the levels of chemical absorbed into their bodies, and any adverse reactions noted. Minoxidil was used twice daily for a total of 11 doses. **Conclusions:** No Scalp irritation noted, some Liver function abnormalities were found however (increased ALT). Investigators conclude that males under 18 years of age are not at higher risk for systemic absorption of Minoxidil.
- **Incidence of Androgenetic Alopecia in Males 15 to 17 Years of Age** Previously, very few if any substantial studies have been done to determine exactly how prevalent hair loss is in men between ages 15 and 17 years of age. This is a very easy to read abstract, with interesting information, so click above. **Conclusions:** This study has officially established that approximately 16% of males age 15 to 17 are beginning to lose their hair.
- **Stabilization of Hair Loss with Use of Minoxidil Topical Solution** Study presented by Pharmacia (Makers of Minoxidil) to determine long term efficacy of Minoxidil on stabilizing hair loss (stopping further negative progression). They're calling it an 11,000 participant post-marketing study, and the results are as follows: **Conclusions:** 4 out of 5 Minoxidil 2% and Minoxidil 5% users were shown to maintain HAIR COUNT after 5 years of use. This implies an 80% effectiveness rate at maintaining hair count on Minoxidil Those of you who are familiar with the other well established Minoxidil studies will realize that these results differ greatly. Click the link above and review the specific numbers. This is a fairly new study, and new studies do outweigh old ones, typically.
- **Clinical Survey Evaluating Minoxidil Topical Solution in the Treatment of Androgenetic Alopecia in Patients Under 18 Years of Age** This study was done to evaluate a large cross section of the population by survey's of Dermatologists, in order to determine the number of patients under the age of 18 that are being treated with Topical Minoxidil Solution for hair loss, and to determine level of side effects, and effectiveness. **Conclusions:** To get a true understanding of the results, please read the abstract by clicking above. In general, approximately half of the teenagers using Minoxidil for a year to a year and a half had seen improvement or a stoppage of hair loss. About 6% of them complained of irritation at the application site. Investigators concluded that Minoxidil is being widely used in treating hair loss in males and females around the age of 15-18, and it is showing to be effective and well tolerated.
- **Effect of Hair Growth of HEM-13/HDC Hair Tonic (Herbal Extract Mixtures) in Androgenetic Alopecia as Measured by Phototrichogram** Yes, that's right, a Herbal Tonic that works. In Korean folk medicine, several herbs have been known to improve blood flow and been used for wound and inflammation, which are: *Angelicae Radix, Cnidii Rhizoma, Salviae Miltiorhizae Radix, Persicae Semen, Sinomeni Caulis et Rhizoma, Viticis Fructus, Zanthoxylum piperitum and Carthami Flos.* **Conclusions:** These herbs in the form of a treatment known as HEM-13/HDC Hair Tonic were tested on human subjects for a period of 9 months, and on Mice subjects along with Minoxidil. In Human subjects, 85% showed a cessation of loss or hair growth. In mice models, the herbal treatment had a similar rate of success as minoxidil.
- **The Hair-Growing Activity of Procyanidin Oligomers Apple Juice Extract.** As a follow-up to a previous study on Procyanidin's (extracted liquid from un-ripened apples) effect on hair loss, this more elaborate study was completed on human models. 21 people used the extract twice a day for a total of 1 year. **Conclusions:** After 1 year of twice a day application, 71% of men showed an increase hair count compared to baseline. Incidence of side effects was zero. They're calling it a potential cure to hair loss. Check out the abstract by clicking above.
- **Early Detection of Decreased Hair Numbers and Hair Miniaturization in Androgenetic Alopecia in Man** The aim of this study was to evaluate correlation between hair density, % of thin hair and clinical staging. **Conclusions:** You're going to have to read the abstract yourself because we couldn't figure out what they concluded. :)
- **Androgenetic Alopecia in Adolescence** **Conclusions:** This study concluded that hair loss related to hormonal changes does occur in adolescents as early as 13 years of age.

- **Quantifying Progression or Reversal of Follicular Miniaturization in Androgenetic Alopecia by Image Analysis** This study was performed in an attempt to improve the method by which hair counts, and treatment progress is ascertained in clinical studies. Typically manual microscopic hair counts are performed, which are tedious, time consuming, flawed, and expensive. The investigators in this study used Digital imaging to provide reproducible information which can be more precise than that derived from visual microscopic examination. A method of image analysis was developed to determine hair counts and to size individual follicles. A Nikon D1 digital camera was attached to an Olympus BX 40 microscope. The apparatus was linked to a Dell Dimension XPS T500 desktop computer. An imaging program was used, and data was handled with automated computer analysis.
- **Histology and Hormonal Activity in Senescent Thinning in Males** Many people (including we here at HairlossTalk) have hypothesized about the possibility of "riding out the DHT storm". The idea behind this theory is that it's typically understood that it is the hormonal changes occurring in men during their 20's and 30's that is the cause for most Male Pattern Baldness. Consequently, the theory follows, that if one can effectively inhibit these hormonal changes, or usurp them via a growth stimulant through the years of greatest threat (20 - 50), one might logically be able to cease treatment of hair loss at some time in his future. A logical study then, would be to evaluate the hormonal makeup of scalps in men over the age of 60 who are just starting to lose hair, and see how it compares to scalps of men in their 20's and 30's who are undergoing Androgenetic Alopecia (Male Pattern Baldness due to Hormonal changes). This study did just that. **Conclusions:** Please read the abstract for important information. Investigators found that men who lose their hair in their 20's have nearly twice as much androgen related activity going on in their scalp as men just beginning to lose hair in their 60's. This type of hair loss, known as "Senescent" thinning, therefore, is assumed to be due to much different causes than typical Male Pattern Baldness, and, with a little stretch of the imagination, could imply that at this stage in life, inhibiting hormonal processes to stop hair loss may no longer be necessary.
- **High Efficacy Gene Therapy of Growing Hair Shafts** A new gene therapy technology of hair follicles has been developed which results for the first time in efficient genetic and phenotype alteration of the hair shaft. **Conclusions:** These experiments demonstrate that it is possible to genetically modify hair follicles by removing a small number of follicle cells, introducing new genetic material, and re-implanting the engineered cells into an organism. This process has for the first time shown the ability to transfer follicular genetic traits from one organism to another with high efficiency. The process resulted in extensive modifications to the hair shaft after having been implanted into the new organism. This new technology indicates the possibility of efficient clinical genetic modification of the hair shaft such as during a hair transplant process.
- **TrichoScan: Combining Epiluminescence Microscopy with Digital Image Analysis for the Measurement of Hair Growth in vivo** The ability to truly monitor the rate of hair growth has been done manually for the most part up until now. A new technology known as the Trichoscan has the ability to digitally analyze Hair Density, Hair Diameter, Hair Growth Rate, and Anagen/Telogen ratio. They took 30 volunteers, and photographed a portion of scalp hair every 3 months. **Conclusions:** The tool effectively analyzed the Anagen/Telogen ratio, determining exactly which hairs were and were not being affected by Male Pattern Baldness, and the hormonal processes related. They also effectively determined an average growth rate of hair was 0.31 millimeters per day. More importantly, they were able to assess accurately that hair number and hair diameter did not change over the 6 month evaluation (these patients were not on any hair loss treatments, and some were / were not experiencing hair loss, so this result is expected). **Importance of This New Technology:** This tool can now far more accurately assess hair counts, changes in hair thickness, rate of growth, and % of hairs under onslaught by male pattern baldness for clinical trials on new treatments. This tool will enable researchers to more accurately evaluate effectiveness of certain treatments, and will be used widely for Alopecia Areata as well as AGA.
- **New Developments in Alopecia Areata Using Rodent Models** A review of the benefits of using Rodent models in evaluating treatments and causes of Alopecia Areata. There is high hope that rodent models will continue to provide more valuable information on AA in the near future.
- **Effect of Coapplication of Capsaicin and Minoxidil on the Murine Hair Growth Hypothesis** was developed that Capsaicin in conjunction with Minoxidil might yield better results than the typically vellus (thin, as opposed to thick and coarse) hairs that Minoxidil is able to produce. **Conclusions:** Conclusions on this study seem a little confusing. They sought to determine the effect of both treatments in combination, and had a Minoxidil-only, Capsaicin-only, and Combination group of subjects. Then they say that Capsaicin quickly induced anagen, as did Minoxidil. In this abstract they don't seem to have elaborated on the effect of the combination treatment. Then again, this is study number 200 we've looked at today, so we could be missing something...
- **Alopecia Areata: Treatment Today and Tomorrow** A discussion of some of the types of treatments that are in store for Alopecia Areata in the coming years

**More Relevant Study Results from the upcoming Tokyo Conference** Here are the remainder of studies we felt would be of interest to you, extracted from the conference schedule. Once again, the entirety of the studies presented here still only make up less than half (~60) of the total studies being presented at the conference (170).

Suppression of TGF- $\beta$  Prevents Apoptosis Induction in the Catagen Hair Follicle

Androgen-Inducible TGF- $\beta$ 1 Derived from Dermal Papilla Cells Mediates Hair Growth Suppression in Androgenetic Alopecia

Recapitulation of the Hairless Mouse Phenotype Using Catalytic Oligonucleotides (Christiano AM Columbia University, New York)

Molecular Control of Chemotherapy-Induced Hair Loss: Essential Roles for p53 and Its Target Genes

Prolactin Receptor Knockout Mice Have Altered Hair Growth Cycles

Gene Expression Profile in Dermal Papilla Cells and Construction of Hair Specific cDNA Microarrays

Factors that Mediate and Modulate Androgen Action

Diagnosis and Treatment of Androgenetic Alopecia in Women

Endocrine Controls of Hair Growth: New Developments

Role of Stat3 in Hair Development Revealed by the Conditional Gene Targeting

Targeted Disruption of LIG-1 Gene Provides New Insight into Keratinocyte Stem Cells

Minoxidil Stimulated Hair Growth in Organ Culture is Inhibited by the Potassium Channel Blocker, Tolbutamide

Nitric Oxide Production of Human Dermal Papilla Cells: Basal and Androgen Stimulated Expression of Constitutive and Inducible Nitric Oxide Synthase

A Significant Role of Aromatase Cytochrome P450 on Hair Re-growth and Pigmentation

The Molecular Basis of Tooth Development and Its Implications in Signaling Systems in Hair Development

Finasteride for Androgenetic Alopecia: A Review of the Clinical Trials

Hair Follicle Stem Cells: Past, Present, and Future

Growth Factor Secretion by Dermal Papilla Cells is Regulated by Neurotrophins

Signal Transduction Pathways and Cytokines Involved in Restoration of Hair Growth with Topical Anthralin in Alopecia Areata Rats

Expression of the Proteins Associated with Epidermal Differentiation during Human Hair Growth Cycle

The Effect of Age on Hair Root Amino Acid Levels in Human Subjects

17 $\alpha$ -Estradiol Induces Aromatase Activity in Isolated Human Hair Follicles

The Influence of Testosterone Propionate on the Expression of Several Growth Factors in Scalp Dermal Papilla Cell

5 $\alpha$ -Dihydrotestosterone and Testosterone Induce Apoptosis in Human Dermal Papilla Cells by Downregulation of the bcl-2 Pathway

Endothelins Induce the Regression of Anagen Hair Follicle via Endothelin Receptors

Combined Effect of Substance P and Calcitonin Gene Related Peptide on the Hair Growth

Balding Scalp Dermal Papilla Cells Secrete a Soluble Factor(s) Which Delays the Onset of Anagen in Mice in vivo

Intracellular Signalling of Phytoestrogens in Relation to VEGF Receptors Expression by Hair Follicle Cells

Study of the Effects of Thyroid Hormone on Hair Cycle and Hair Growth

Effect of Minoxidil on Proliferation and Apoptosis in Human Dermal Papilla Cells

Effect on Hair Growth of HEM-13/HDC (A Mixture of 8 Herbal Extracts) in Human and C3H Mice

The Effect of Sophora Root Extract on the Anagen Elongation and Isolation of Active Compounds

The Effect of Taurine and Its Derivatives on the Hair Follicle Cell

The Shedding Phase of the Mouse Hair Growth Cycle, Exogen, is Coupled to Anagen and Generates a Unique Hair Shaft Base

Prolonged Telogen Stage by Footshock Stress in Mice

Follicular Slow Cycling Stem Cells are Directed to Cell Death by Plucking, Followed by Regeneration in the Reconstructed Bulge Region

Micrografts of Human Scalp onto Nude Mice: Technical Improvement of a Human Hair Growth Model in vivo

The Human Hair Follicle Contains Two Distinct K19 Positive Compartments in the Outer Root Sheath: A Unifying Hypothesis for Stem Cell Reservoir?

Use of Minoxidil Topical Solution in the Treatment of Alopecia Areata in Patients Under 18 Years of Age

A Clinical Study of Alopecia in Children (1995-2000)

A Clinical Study of Alopecia Areata (1996-2000)

Successful Treatment of Alopecia Totalis/Universalis by General PUVA Therapy Combined with Systemic and Topical Corticosteroids

Efficacy of Imiquimod in the Treatment of Alopecia Areata

**HLT**