SPONSORING SOCIETY STATEMENT

Core Curriculum for Hair Restoration Surgery, Recommended by the International Society of Hair Restoration Surgery (ISHRS)

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BACKGROUND Because hair restoration surgery (HRS) has changed so significantly, the International Society of Hair Restoration Surgery (ISHRS) presents the recently developed Core Curriculum for Hair Restoration Surgery (CCHRS). Physician competence in HRS demands a sound understanding of all of the alternate pathologic causes of hair loss, as well as their risks and treatments.

OBJECTIVE The CCHRS defines the knowledge, didactic information, medical insights, and surgical techniques that are essential to physician competence in the correct diagnoses and treatment of hair loss problems, in a manner consistent with patient safety and sound esthetic results. The ISHRS hopes that all existing surgical and dermatology training programs that teach HRS procedures will find the CCHRS useful in developing their curriculum relative to HRS and that this will facilitate the development of a new standard of training within the profession.

METHODS Developed and reviewed by a committee of experienced hair restoration surgeons.

RESULTS. The CCCHRS clearly defines the diagnosis and treatment of hair loss as a multidimensional specialty requiring knowledge of several medical disciplines, including genetics, endocrinology, dermatology, and surgery.

CONCLUSION The ISHRS believes that the CCHRS is an important contribution to physician education in HRS and that a clearly defined core curriculum will facilitate achieving contemporary results and higher patient satisfaction.

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This article presents the Core Curriculum for Hair Restoration Surgery (CCHRS) as defined by the International Society of Hair Restoration Surgery (ISHRS) (Appendix). Over the last two decades, the fundamental philosophy pertaining to hair restoration surgery (HRS) has evolved from the unesthetic drive for as much density as possible to an esthetically sophisticated reconstruction of naturally occurring hairlines and hair patterns. Both surgeons and their patients have shifted the therapeutic goals to focus on natural versus thick. This has occurred as a result of realizing that smaller grafts, of one or two hairs, create a virtually unde-

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tectable and natural result with minimal scarring.

In 1993, the ISHRS was formed to enhance the communication between hair restoration physicians around the world. The open and honest communications that resulted from this organization's leadership accelerated the development of technologies permitting the movement of large numbers of very small grafts safely and esthetically and brought to the patient consistently natural results never before seen.

The cross-specialty nature of this improved communication emphasized to the hair restoration surgeon that not all hair loss is androgenic in nature and that physician competence in HRS demands a sound understanding of all of the alternate pathologic causes of hair loss, as well as their risks and treatments. Indeed, the multidimensional nature of the evaluation and treatment of the hair loss patient accounts for the wide variety of medical specialists who become intrigued with the problem and active in the discipline. It is not the intent of the CCHRS to enable all hair restoration surgeons to treat all of the different medical causes of hair loss but rather to recognize these and appropriately refer when indicated.

The CCHRS recognizes that contemporary hair restoration technologies are complex and require considerably longer training periods for mastery. To facilitate surgeons training in these complex skills, the ISHRS has developed guidelines for 1- and 2-year fellowship training programs in HRS, specifically to accomplish the goals set forth in this core curriculum.

We hope that this document will help existing residency training programs that include HRS procedures as one of their core educational goals to clearly communicate the complexities of treating these patients. The CCHRS is intended to be used in part or in whole to structure education for current and future HRS surgeons. Furthermore, the ISHRS hopes that all existing surgical and dermatology training programs that teach HRS procedures will find the CCHRS useful in developing their curriculum relative to HRS and that this will facilitate the development of a new standard of training within the profession in an area of practice that has been too long ignored as needing standards.

The ISHRS also recognizes that the current "state of the art" of HRS has changed so significantly that many physicians performing HRS may not be familiar with recent changes in the technology and philosophy of practice. The ISHRS is hopeful that HRS physicians will review the CCHRS and seek out the training necessary to complete their competencies in this area of medicine.

To better serve the profession, the ISHRS has formed a standing committee to continuously maintain and update the CCHRS. The CCHRS defines the knowledge, didactic information, medical insights, and surgical techniques that are essential to physician competence in the correct diagnoses and treatment of hair loss problems, in a manner consistent with patient safety and sound esthetic results. By updating knowledge and training in HRS, the ISHRS hopes to enable HRS physicians to achieve contemporary results and higher patient satisfaction.

This document is reviewed annually by the ISHRS, encompasses basic science and rudimentary and advanced diagnostics and interventions, and contains only those topics and techniques that are evidence based or have proven beneficial to patients through the test of time in application.

The CCHRS is designed to be flexible so that it can be expanded or contracted in detail to the level required by the user. The CCHRS has been expanded to the third level in this article. A more detailed outline is available on the ISHRS Web site at <www.ISHRS.org>.

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Appendix. Core Curriculum for Hair Restoration Surgery

1. Basic Science

- 1.1. Basic Science of Hair
  - 1.1.1. Scalp Anatomy and Physiology
  - 1.1.2. Cyclic Activity of Hair
  - 1.1.3. Androgen-Dependent Hair
  - 1.1.4. Pathophysiology of Androgenic Alopecia
  - 1.1.5. Alopecia: Classification and Incidence
  - 1.1.6. Types of Hair
  - 1.1.7. Racial and Individual Variations
  - 1.1.8. Hair Loss Etiologies
  - 1.1.9. Excess Hair Growth
  - 1.1.10. Dermatological Scalp Conditions
- 1.2. Epidemiology and Demographics of Hair Loss
  - 1.2.1. Age and Androgenetic Alopecia (AGA) in Men
  - 1.2.2. Female Androgenetic Alopecia (AGA)
  - 1.2.3. Ethnic Variation in the Characteristics of Skin, Scalp, and Hair
- 1.3. Wound Healing
  - 1.3.1. Basic Science
  - 1.3.2. Factors that Influence Wound Healing
  - 1.3.3. Anatomic and Skin Type Considerations
  - 1.3.4. Microbiology
  - 1.3.5. Biomechanics and Histology of Normal Skin and Scars
  - 1.3.6. Wound Healing

2. Clinical Science

- 2.1. General Surgical Principles
  - 2.1.1. Sterile Technique
  - 2.1.2. Instrumentation
  - 2.1.3. Instrument Preparation
  - 2.1.4. Closure Materials
  - 2.1.5. Wound Care
- 2.2. Patient Consultation, Evaluation, and Preparation
  - 2.2.1. Psychology of Hair
  - 2.2.2. Patient Evaluation
  - 2.2.3. Selection
  - 2.2.4. Standardized Photography for Hair Restoration
  - 2.2.5. Medicolegal Issues in Hair Replacement
  - 2.2.6. Hair Transplantation
  - 2.2.7. Hairline Design Details
  - 2.2.8. The Donor Site
  - 2.2.9. Graft Preparation Techniques
  - 2.2.10. Graft Insertion Techniques
  - 2.2.11. Postoperative Care
  - 2.2.12. Scalp Reductions and Scalp-Lifting
  - 2.2.13. Pedicle Rotation Flaps in the Surgical Treatment of Alopecia
- 2.3. Development of Treatment Plan
  - 2.3.1. Patient Expectations
  - 2.3.2. Surgical Feasibility
  - 2.3.3. Assessments of Risks/Benefits of Treatment Plan
  - 2.3.4. Informed Consent to Include Alternative Therapies
- 2.4. Anesthesia
  - 2.4.1. Acetylsalicylic Acid (ASA) Risk Classification
  - 2.4.2. Topical
  - 2.4.3. Local
  - 2.4.4. Regional
  - 2.4.5. Nerve Block Anesthesia of the Scalp
  - 2.4.6. Special Considerations
  - 2.4.7. Complications
  - 2.4.8. Pain Control and Management of the Postoperative Period
- 2.5. Emergency Preparedness
  - 2.5.1. Management of Surgical Emergencies
  - 2.5.2. Basic and Advanced Cardiac Life Support (ACLS Curriculum)
  - 2.5.3. Emergency Situations in Hair Transplantation
- 2.6. Reconstruction
  - 2.6.1. Surgical Techniques
  - 2.6.2. Surgical Options
- 2.7. Complications
  - 2.7.1. General Theory, Management, and Prevention of Complications
  - 2.7.2. Complications of Hair Transplantation
  - 2.7.3. Complications of Flaps in the Treatment of Baldness
  - 2.7.4. Scar Revision
- 2.8. Strategies in Updating Old Techniques and Correcting Suboptimal Results
- 2.9. Interdisciplinary Care of Patient
  - 2.9.1. Interdisciplinary Care for Complicated Cases
  - 2.9.2. Interaction with Other Medical and Surgical Specialists to Provide Optimal Care
  - 2.9.3. Education of Other Medical, Surgical, and Lay Specialists in Hair Restoration Surgery
  - 2.9.4. Nonsurgical Hair Replacement
- 2.10. Medical Therapy
  - 2.10.1. Current Understanding of Androgenetic Alopecia (AGA) and Testosterone
  - 2.10.2. Minoxidil
  - 2.10.3. Finasteride
  - 2.10.4. Dutasteride
  - 2.10.5. Over-the-Counter (OTC) Treatments and Hoaxes

- 2.11. Special Considerations
  - 2.11.1. Hair Transplantation in Blacks
  - 2.11.2. Hair Transplantation in Asians
  - 2.11.3. Hair Transplantation in Females
  - 2.11.4. Hair Transplantation of the Eyebrows
  - 2.11.5. Hair Transplantation of the Eyelashes
  - 2.11.6. Reconstruction of the Temporal Points Area
  - 2.11.7. Moustache Transplantation
  - 2.11.8. Hair Transplantation in Skin Grafts, Thin Recipient Skin, and Radiation-Induced Alopecia
  - 2.11.9. Treatment of the Genetically Male Transsexual
  - 2.11.10. Treatment of Female Pattern Alopecia
  - 2.11.11. Synthetic Hair
  - 2.11.12. Automation Techniques in Hair Restoration Surgery
  - 2.11.13. Scalp Reconstruction Techniques
  - 2.11.14. Ethics, Marketing, and Patient Consent

3. Professional/Regulatory Topics

- 3.1. Medicolegal Issues
  - 3.1.1. Risk Assessment in the Surgical Patient
  - 3.1.2. Medical Record Documentation
  - 3.1.3. Quality Assurance (QA) and Continuous Quality Improvement (CQI)
  - 3.1.4. Informed Consent
  - 3.1.5. Photographic Reproduction
- 3.2. Regulatory Issues
  - 3.2.1. Occupational Safety and Health Administration (OSHA)
  - 3.2.2. Bloodborne Pathogens (BBP)
- 3.3. Professional Ethics
  - 3.3.1. Professional Ethical Standards
  - 3.3.2. Selection of the Most Cost-Effective Treatment Plan Given Patient Goals
  - 3.3.3. Realistic Expectations
  - 3.3.4. Professional Marketing

COMMENTARY

Sadly, the field of dermatology and dermatologic surgery has largely abandoned training in hair transplantation. Hair transplantation should be as much a part of a dermatologist's surgical therapy as removing a mole or a skin cancer. Hair disorders affect a significant number of our patients. Dermatologists diagnose and medically treat hair disorders but have abandoned a safe, surgical, therapeutic option for our patients. The lack of training in the field has resulted in physicians from other specialties increasingly contributing to the innovations and high standards of the procedure. Where would the field of dermatology be if dermatologists diagnosed skin cancers but were not able to excise them or diagnosed vascular malformations but were not able to treat them?

Puig and colleagues should be congratulated on their core curriculum. Through forums such as the International Society of Hair Restoration Surgery (ISHRS), this journal, and workshops, the quality of the procedure has improved enormously over the past 10 years. Education and training are the major reason for the evolution away from cosmetically "pluggy" grafts to consistently natural-appearing hair for men and women. A core curriculum for training physicians is the next logical step toward training highly skilled hair transplant surgeons.

One challenge the curriculum faces is the wide variety of physician specialties that train in hair transplantation. Through a shocking lack of training in resident programs, the vast majority of dermatologists are no longer able to surgically repair hair loss for their patients. Fortunately, other physicians from medical and surgical backgrounds grew interested in the procedure and have greatly contributed with innovations. Training to recognize and treat the variety of scalp diseases that should be treated medically, not surgically, remains a challenge for nondermatologists performing the procedure. A close working relationship with a dermatologist to treat or consult on patients with any question regarding the etiology of a patient's hair loss is vital.

In the future, there will be formal 1- or 2-year fellowships with intense pathology, medical, and surgical training in all aspects of hair disease, open to all fields of medicine, taught by a dedicated faculty from the ISHRS and the American Academy of Dermatology. Fellows trained in diagnosing and medically and surgically treating hair disorders will allow the highest quality of care for our patients. Puig and colleagues have taken another important step for our patients.

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