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PERSONALIZATION OF EXCIMER LASER FIBERS

Abstract

The invention provides personalized laser probes for use in laser systems, wherein each laser probe includes one or more characteristics tailored to a given user to thereby improve performance of and outcome of a laser treatment procedure.

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Background/Summary

RELATED APPLICATIONS [0001] This application is a continuation patent application of U.S. application Ser. No. 18/140,158, filed Apr. 27, 2023, which is a continuation patent application of U.S. application Ser. No. 17/644,930, filed Dec. 17, 2021, now U.S. Pat. No. 11,666,482, which is a continuation patent application of U.S. application Ser. No. 16/389,425, filed Apr. 19, 2019, now U.S. Pat. No. 11,234,866, each of which are incorporated herein by reference in its entirety.

TECHNICAL FIELD
[0002] The disclosure relates to optical fibers for use in medical laser systems.
BACKGROUND
[0003] Glaucoma is a group of eye conditions which result in damage to the optic nerve and lead to vision loss. While glaucoma can occur at any age, it is more common in older adults and is one of the leading causes of blindness for people over the age of 60. A major risk factor in glaucoma is ocular hypertension, in which intraocular pressure is higher than normal. An elevated intraocular pressure can lead to atrophy of the optic nerve, subsequent visual field disturbances, and eventual blindness if left untreated.
[0004] Intraocular pressure is a function of the production of aqueous humor fluid by the ciliary processes of the eye and its drainage through a tissue called the trabecular meshwork. The trabecular meshwork is an area of tissue in the eye located around the base of the cornea and is responsible for draining the aqueous humor into a lymphatic-like vessel in the eye called Schlemm's canal, which subsequently delivers the drained aqueous humor into the bloodstream. Proper flow and drainage of the aqueous humor through the trabecular meshwork keeps the pressure inside the eye normally balanced. In open-angle glaucoma, the most common type of glaucoma, degeneration or obstruction of the trabecular meshwork can result in slowing or completely preventing the drainage of aqueous humor, causing a buildup of fluid, which increases the intraocular pressure. Under the strain of this pressure, the optic nerve fibers become damaged and may eventually die, resulting in permanent vision loss.
[0005] If treated early, it is possible to slow or stop the progression of glaucoma. Depending on the type of glaucoma, treatment options may include eye drops, oral medications, surgery, laser treatment, or a combination of any of these. For example, treatment of open-angle glaucoma may include surgical treatments, such as filtering surgery, in which an opening is created in the sclera of the eye and a portion of the trabecular meshwork is removed, and surgical implantation of stents or implants (i.e., drainage tubes), in which a small tube shunt is positioned within the eye to assist in fluid drainage. However, such treatments are highly invasive and may present many complications, including leaks, infections, hypotony (e.g., low eye pressure), and require post-operative, long-term monitoring to avoid late complications.
[0006] More recently, minimally invasive laser treatments have been used to treat glaucoma. In such treatments, the surgeon uses a laser to thermally modify and/or to puncture completely through various structures, including the trabecular meshwork and/or Schlemm's canal. For example, a laser trabeculostomy is a procedure in which a surgeon guides a working end of a laser fiber through a corneal incision of the eye and towards the trabecular meshwork and applies laser energy to destroy portions of the meshwork to create channels in the meshwork which allow

aqueous humor to flow more freely into the Schlemm's canal. A great degree of precision is required during minimally invasive laser treatments. For example, a surgeon must be able to properly position the laser fiber at a correct position relative to the trabecular meshwork and Schlemm's canal to ensure that the resulting perforations, or channels, created by the laser are optimal. However, current laser fiber options are limited. Most laser fibers are similarly constructed and have similar features. As a result, surgeons have very few options when selecting a laser fiber of their choice. Rather, surgeons are forced to use laser fibers that lack certain qualities that a given surgeon requires when performing certain procedures, such as desired feel, feedback, and overall function of a laser fiber. As a result, the laser treatment may be inadequate, as the desired drainage may not be achieved, and thus patients may require additional post-operative procedures to lower the intraocular pressure. For example, with current laser fiber options, a surgeon may position the laser too close or too far from the trabecular meshwork and Schlemm's canal and/or position the laser at improper angles relative to the trabecular meshwork and Schlemm's canal, resulting in unintended collateral tissue damage or the creation of channels that inadequate and do not provide the desired drainage.

SUMMARY

[0007] The present invention provides personalized laser probes for use in laser systems. The laser probes are single-use, disposable probes configured for use with a laser unit. The laser unit includes a laser source for generating laser energy to be provided to a laser probe coupled thereto. Each laser probe is a handheld device, which includes a handheld body and an optical fiber, including a fiber optic core, extending therethrough. Upon coupling the laser probe to the laser unit, the fiber optic core is adapted to direct laser radiation from the laser source to delivery tip of the probe for transmitting laser energy to a desired treatment area. Each laser probe includes one or more characteristics tailored to a given user (e.g., a surgeon or other medical professional to perform a procedure involving laser treatment).

[0008] The specific characteristics of any given probe are based on individual preferences of a given user. The characteristics may generally relate to shape and/or dimensions of portions of the probe as well as physical qualities of portions of the probe. In some embodiments, the handheld body of a given probe may include specific dimensions, including width, length, and diameter, based on individual preferences of a surgeon to improve fit and feel. In some embodiments, the profile of the delivery tip of the fiber optic core may be shaped based on preferences of a surgeon, wherein the tip may be beveled at a desired angle to enable more precise control over the procedure. In some embodiments, the distal end of the laser probe may have a specific degree of flexibility or rigidity based on based on preferences of a surgeon, further providing improved feel and maneuverability over the procedure.

[0009] The personalization of laser probes provides surgeons with tailored fit, feel, and function. Surgeons are better equipped to successfully perform a given procedure that may otherwise prove difficult due to the lack of variation among laser fiber options. In particular, the laser probes and laser unit of the present invention are preferably used for permanent treatment of glaucoma using laser trabeculostomy. By providing personalized laser probes, a surgeon is more comfortable with the laser probe and able to perform the procedure with the required precision to ensure optimal laser treatment of the target area. In particular, by using a personalized laser probe, the surgeon is able to better position laser emission transverse to the Schlemm's canal, to create perforations, or channels, to improve fluid drainage, increase flow of aqueous humor, and reduce pressure in the eye. Arranging the laser probe at a position transverse to Schlemm's canal provides optimum results by providing a greater amount of surface area for photoablation by the laser, resulting in improved perforation and thus improved fluid drainage.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** is schematic sectional view of an eye illustrating the interior anatomical structure.

[0011] FIG. **2** is a perspective fragmentary view of the anatomy within the anterior chamber of an eye depicting the comeoscleral angle.

[0012] FIG. **3** diagrams an excimer laser system of the present disclosure.

[0013] FIG. **4** shows an embodiment an excimer laser unit.

[0014] FIG. **5** shows an embodiment of a probe for use with the excimer laser system.

[0015] FIG. **6** shows an embodiment of a probe for use with the excimer laser system.

[0016] FIG. **7** shows a cross-sectional view of the probe taken along line A-A of FIG. **6**.

[0017] FIG. **8** shows a cross-sectional view of the probe taken along line B-B of FIG. **6**.

[0018] FIG. **9** shows an enlarged view of a distal portion of a probe.

[0019] FIGS. **10**A and **10**B show enlarged views of delivery tips of a probe having different bevel angles.

[0020] FIGS. **11** and **12** show enlarged views of a distal portion of a probe flexing in different directions.

DETAILED DESCRIPTION

[0021] The present invention provides personalized laser probes for use in laser systems. The laser probes are single-use, disposable probes configured for use with a laser unit. The laser unit includes a laser source for generating laser energy to be provided to a laser probe coupled thereto. Each laser probe is a handheld device, which includes a handheld body and an optical fiber, including a fiber optic core, extending therethrough. Upon coupling the laser probe to the laser unit, the fiber optic core is adapted to direct laser radiation from the laser source to delivery tip of the probe for transmitting laser energy to a desired treatment area.

[0022] Each laser probe includes one or more characteristics tailored to a given user (e.g., a surgeon or other medical professional to perform a procedure involving laser treatment). The personalization of laser probes provides surgeons with tailored fit, feel, and function. Surgeons are better equipped to successfully perform a given procedure that may otherwise prove difficult due to the lack of variation among laser fiber options. In particular, the laser probes and laser unit of the present invention are preferably used for permanent treatment of glaucoma using laser trabeculostomy. By providing personalized laser probes, a surgeon is more comfortable with the laser probe and able to perform the procedure with the required precision to ensure optimal laser treatment of the target area. In particular, by using a personalized laser probe, the surgeon is able to better position laser emission transverse to the Schlemm's canal, to create perforations, or channels, to improve fluid drainage, increase flow of aqueous humor and reduce pressure in the eye. Arranging the laser probe at a position transverse to Schlemm's canal provides optimum results by providing a greater amount of surface area for photoablation by the laser, resulting in improved perforation and thus improved fluid drainage.

[0023] The system of the present invention is particularly well suited for intraocular procedures in which laser treatment of target tissues is desired. In particular, the laser source and laser probes of the present invention are preferably used for treating glaucoma and useful in performing a laser trabeculostomy. However, it should be noted that the system consistent with the present disclosure can be used in any laser treatment of various conditions, including other eye conditions (i.e., diabetic eye diseases, such as proliferative diabetic retinopathy or macular oedema, cases of age-related macular degeneration, retinal tears, and retinopathy of prematurity, and laser-assisted in situ keratomileusis (LASIK) to correct refractive errors, such as short-sightedness (myopia) or astigmatism) as well as other conditions in general and other practice areas (non-ocular practice areas).

[0024] In order to fully appreciate the present invention, a brief overview of the anatomy of the eye is provided. FIG. **1** is schematic sectional view of an eye illustrating the interior anatomical structure. As shown, the outer layer of the eye includes a sclera **17** that serves as a supporting framework for the eye. The front of the sclera includes a cornea **15**, a transparent tissue that enables light to enter the eye. An anterior chamber **7** is located between the cornea **15** and a crystalline lens **4**. The anterior chamber **7** contains a constantly flowing clear fluid called aqueous humor **1**. The crystalline lens **4** is connected to the eye by fiber zonules, which are connected to the ciliary body **3**. In the anterior chamber **7**, an iris **19** encircles the outer perimeter of the lens **4** and includes a pupil **5** at its center. The pupil **5** controls the amount of light passing through the lens **4**. A posterior chamber **2** is located between the crystalline lens **4** and the retina **8**.

[0025] FIG. **2** is a perspective fragmentary view of the anatomy within the anterior chamber of an eye depicting the comeoscleral angle. As shown, the anatomy of the eye further includes a trabecular meshwork **9**, which is a narrow band of spongy tissue that encircles the iris **19** within the eye. The trabecular meshwork has a variable shape and is microscopic in size. It is of a triangular cross-section and of varying thickness in the range of 100-200 microns. It is made up of different fibrous layers having micron-sized pores forming fluid pathways for the egress of aqueous humor. The trabecular meshwork **9** has been measured to about a thickness of about 100 microns at its anterior edge, Schwalbe's line **18**, which is at the approximate juncture of the cornea **15** and sclera **17**.

[0026] The trabecular meshwork widens to about 200 microns at its base where it and iris **19** attach to the scleral spur. The passageways through the pores in trabecular meshwork **9** lead through very thin, porous tissue called the juxtacanalicular trabecular meshwork **13** that in turn abuts the interior side of a structure called Schlemm's canal **11**. Schlemm's canal **11** is filled with a mixture of aqueous humor and blood components and branches off into collector channels **12** which drain the aqueous humor into the venous system. Because aqueous humor is constantly produced by the eye, any obstruction in the trabecular meshwork, the juxtacanalicular trabecular meshwork or in Schlemm's canal prevents the aqueous humor from readily escaping from the anterior eye chamber which results in an elevation of intraocular pressure within the eye.

[0027] The eye has a drainage system for the draining aqueous humor **1** located in the corneoscleral angle. In general, the ciliary body **3** produces the aqueous humor **1**. This aqueous humor flows from the posterior chamber **2** through the pupil **5** into the anterior chamber **7** to the trabecular meshwork **9** and into Schlemm's canal **11** to collector channels **12** to aqueous veins. The obstruction of the aqueous humor outflow which occurs in most open angle glaucoma (i.e., glaucoma characterized by gonioscopically readily visible trabecular meshwork) typically is localized to the region of the juxtacanalicular trabecular meshwork **13**, which is located between the trabecular meshwork **9** and Schlemm's canal **11**, more specifically, the inner wall of Schlemm's canal. It is desirable to correct this outflow obstruction by enhancing the eye's ability to use the inherent drainage system.

[0028] When an obstruction develops, for example, at the juxtacanalicular trabecular meshwork **13**, intraocular pressure gradually increases over time, thereby leading to damage and atrophy of the optic nerve, subsequent visual field disturbances, and eventual blindness if left untreated. The laser probe of the present invention is well suited for use in treating glaucoma. In particular, as will be described in greater detail herein, the laser probe is configured to be coupled to a laser source and transmit laser energy from the laser source to the trabecular meshwork **13**, resulting in photoablation of tissue (including at least the trabecular meshwork **13** and, in some instances, the Schlemm's canal **11**) for the creation of channels in the meshwork (and potentially Schlemm's canal **11**, thereby improving fluid drainage into the Schlemm's canal **11** and reducing intraocular pressure in the eye.

[0029] FIG. **3** diagrams an excimer laser system, including a laser unit system **100** and a plurality of laser probes **200**(**1**), **200**(**2**), **200**(n) couplable to the laser unit system **100**. The system **100** includes a laser source **102** for generating laser energy and a controller **108** for controlling output of the laser energy. The laser source **102** includes an excimer laser **104** and a gas cartridge **106** for providing the appropriate gas combination to the laser **104**. The excimer laser **104** is a form of ultraviolet laser that generally operates in the UV spectral region and generates nanosecond pulses. The excimer gain medium (i.e., the medium contained within the gas cartridge **106**) is generally a gas mixture containing a noble gas (e.g., argon, krypton, or xenon) and a reactive gas (e.g., fluorine or chlorine). Under the appropriate conditions of electrical stimulation and high pressure, a pseudo-molecule called an excimer (or in the case of noble gas halides, exciplex) is created, which can only exist in an energized state and can give rise to laser light in the UV range.

[0030] Laser action in an excimer molecule occurs because it has a bound (associative) excited state, but a repulsive (dissociative) ground state. Noble gases such as xenon and krypton are highly inert and do not usually form chemical compounds. However, when in an excited state (induced by electrical discharge or high-energy electron beams), they can form temporarily bound molecules with themselves (excimer) or with halogens (exciplex) such as fluorine and chlorine. The excited compound can release its excess energy by undergoing spontaneous or stimulated emission, resulting in a strongly repulsive ground state molecule which very quickly (on the order of a picosecond) dissociates back into two unbound atoms. This forms a population inversion. The excimer laser **104** of the present system **100** is an XeCl excimer laser and emits a wavelength of 308 nm.

[0031] As will be described in greater detail herein, many of the components of the laser unit system **100** may be contained in a housing, such as a moveable platform, to be provided in a setting in which the procedure is to be performed (e.g., operating room, procedure room, outpatient office setting, etc.) and the probes **200**(**1**)-**200**(n) may connect to the housing for use during treatment. Upon coupling a probe **200** to the housing, a fiber optic core of the probe **200** is coupled to the laser source **102** and adapted to direct laser radiation from the laser source **102**, through the fiber, and to the treatment area.

[0032] The controller **108** provides an operator (i.e., surgeon or other medical professional) with control over the output of laser signals (from the excimer laser **104** to a fiber optic core of the probe **200**) and, in turn, control over the transmission of laser energy from probe **200**. The controller **108** may include software, firmware and/or circuitry configured to perform any of the aforementioned operations. Software may be embodied as a software package, code, instructions, instruction sets and/or data recorded on non-transitory computer readable storage medium. Firmware may be embodied as code, instructions or instruction sets and/or data that are hard-coded (e.g., nonvolatile) in memory devices. “Circuitry”, as used in any embodiment herein, may comprise, for example, singly or in any combination, hardwired circuitry, programmable circuitry such as computer processors comprising one or more individual instruction processing cores, state machine circuitry, and/or firmware that stores instructions executed by programmable circuitry. For example, the controller **108** may include a hardware processor coupled to non-transitory, computer-readable memory containing instructions executable by the processor to cause the controller to carry out various functions of the laser system **100** as described herein.

[0033] FIG. **4** shows an embodiment an excimer laser unit **100** provided in an instrument **400**. As previously described, one or more components of the system **100** can be contained within the instrument **400**. In the present embodiment, the laser source **102** (including the excimer laser **104** and gas cartridge **106**) and controller **108** are contained within a housing **402**. The housing **402** has wheels **404** and is portable. The instrument **400** further includes a push-pull handle **405** which assists with portability of the instrument **400**. The instrument **400** further includes a connection port **406** for receiving a connecting end of the laser probe **200** to establish a connection between a fiber optic core of the probe **200** and the laser source **102**. The instrument **400** further includes various inputs for the operator, such as an emergency stop button **410**, and a power switch **412**. The instrument **400** further includes a foot pedal **414** extending from the housing **402** and is operable to provide control over the delivery of shots from the excimer laser **104** to the fiber optic core of the probe **200**. The instrument **400** further includes a display **416**, which may be in the form of an

interactive user interface. In some examples, the interactive user interface displays patient information, machine settings, and procedure information. As previously described, an operator may manually input the laser probe data via the interactive user interface to thereby provide such data to the controller **108**. However, in some embodiments, the data may be automatically read from a readable device or label on the probe **200** via an associated reader of the system **100**.
[0034] As shown, the present invention provides for a plurality of personalized laser probes **200**(**1**)-**200**(n) for use with the excimer laser unit **100**. The laser probes **200**(**1**)-**200**(n) are single-use, disposable probes configured for use with a laser unit, one at a time. Upon coupling a laser probe **200** to the laser unit (via the connection portion **406**, the fiber optic core of the probe **200** is adapted to direct laser radiation from the excimer laser **104** to a delivery tip of the probe for transmitting laser energy to a desired treatment area. As will be described in greater detail herein, each laser probe **200**(**1**)-**200**(n) may include one or more characteristics tailored to a given user (e.g., a surgeon or other medical professional to perform a procedure involving laser treatment). As such, only single excimer laser unit **100** is required and a plurality of differently configured probes **200**(**1**)-**200**(n) can be used with the unit **100**.
[0035] FIG. **5** shows an embodiment of a probe **500** for use with the excimer laser system **100**, illustrating the probe **500** having a capped, distal delivery tip **506**. FIG. **6** shows an embodiment of the probe **500** with the cap **514** removed, exposing the delivery tip **506** of the probe **500**. The probe **500** is a single use, disposable unit. The probe **500** generally includes a fiber core coupled to the laser source **102** by way of a connector **502** (elongated cord) extending from the body of the probe **500** and having a connection assembly **504** configured to be received within the connection port **406** of the instrument **400**. The probe **500** further includes a delivery tip **506** from which laser energy (from the fiber core) may be emitted. The probe **500** includes a handheld body **508**, which may include a finger grip **510** with ridges or depressions **512**. The body **508** of the handheld probe **500** may be metal or plastic.
[0036] FIGS. **7** and **8** show cross-sectional views of the probe **500** taken along line A-A and line B-B of FIG. **6**, respectively. As shown, a fiber optic core **518** runs through the probe **500** and forms part of the connector **502**. A protective sheath **516** surrounds the fiber optic core **518**. In some examples, the protective sheath **516** is a protective plastic or rubber sheath. The fiber optic core **518** further form part of the delivery tip **506** of the probe **500**. A metal jacket **520** surrounds the fiber optic core **518** and optical fiber **520**. In some instances, a stainless steel jacket **520** surrounds and protects the fiber optic core **518**.
[0037] Each laser probe includes one or more characteristics tailored to a given user (e.g., a surgeon or other medical professional to perform a procedure involving laser treatment). The specific characteristics of any given probe are based on individual preferences of a given user. The characteristics may generally relate to shape and/or dimensions of portions of the probe as well as physical qualities of portions of the probe. In some embodiments, the handheld body **508** of a given probe may include specific dimensions, including width, length, and diameter, based on individual preferences of a surgeon to improve fit and feel.
[0038] In some embodiments, the profile of the delivery tip **506** of the fiber optic core may be shaped based on preferences of a surgeon, wherein the tip may be beveled at a desired angle to enable more precise control over the procedure. FIG. **9** shows an enlarged view of a distal portion of a probe. FIGS. **10**A and **10**B show enlarged views of delivery tips **506** of a probe having different bevel angles **507**. For example, as shown in FIG. **10**A, the bevel angle θ.sub.1 may be greater than the bevel angle θ.sub.1, as determined by a user's individual preferences. Additionally, or alternatively, the distal end of the laser probe may have a specific degree of flexibility or rigidity based on based on preferences of a surgeon, further providing improved feel and maneuverability over the procedure. For example, FIGS. **11** and **12** show enlarged views of a distal portion **506***a* of a probe flexing in different directions (flexed distal portion **506***b*). As such, the outer jacket **520** surrounding said fiber optic core **518** may include certain materials having properties allowing for

desired flex or rigidity.
[0039] The personalization of laser probes provides surgeons with tailored fit, feel, and function. Surgeons are better equipped to successfully perform a given procedure that may otherwise prove difficult due to the lack of variation among laser fiber options. In particular, the laser probes and laser unit of the present invention are preferably used for permanent treatment of glaucoma using laser trabeculostomy. For example, during a laser trabeculostomy procedure using the laser system and probes of the invention, a physician guides the delivery tip of the probe through a corneal incision in the eye and towards the trabecular meshwork. A Gonio lens and/or illumination source may be used by the physician to aid in positioning the delivery tip. In some examples, the physician uses a light source, such as Gonio lens, endoscope, or other illumination source, to aid in adjusting placement of the probe.
[0040] By providing personalized laser probes, a surgeon is more comfortable with the laser probe and able to perform the procedure with the required precision to ensure optimal laser treatment of the target area. For example, the surgeon is able to better position laser emission transverse to the Schlemm's canal. Once the delivery tip is at a position transverse to the Schlemm's canal, the physician delivers a series of shots of laser energy to the trabecular meshwork. By providing a laser probe at a position transverse to the Schlemm's canal, or crosswise to the Schlemm's canal, the laser is delivered to a greater amount of surface area than if the laser was in a parallel or perpendicular position to the Schlemm's canal. Thus, arrangement of the delivery tip at a position transverse to the Schlemm's canal achieves optimal photoablation and channel formation in the meshwork and/or Schlemm's canal. The orientation and positioning of the delivery tip is critical when creating channel formation in the tissue, as achieving transverse placement of channels in the meshwork relative to Schlemm's canal provides optimal drainage. Arranging the laser probe at a position transverse to Schlemm's canal provides optimum results by providing a greater amount of surface area for photoablation by the laser, resulting in improved perforation and thus improved fluid drainage.
INCORPORATION BY REFERENCE
[0041] References and citations to other documents, such as patents, patent applications, patent publications, journals, books, papers, web contents, have been made throughout this disclosure. All such documents are hereby incorporated herein by reference in their entirety for all purposes.
EQUIVALENTS
[0042] Various modifications of the invention and many further embodiments thereof, in addition to those shown and described herein, will become apparent to those skilled in the art from the full contents of this document, including references to the scientific and patent literature cited herein. The subject matter herein contains important information, exemplification and guidance that can be adapted to the practice of this invention in its various embodiments and equivalents thereof.

Claims

1. (canceled)
2. A system configured to perform an intraocular procedure, said system comprising: a laser unit comprising an excimer laser source; and a plurality of laser probes couplable, one at a time, to said laser unit, each of the plurality of laser probes comprising a handheld component and a fiber optic core configured to transmit laser energy from the excimer laser source to a target tissue for treatment thereof, wherein the plurality of laser probes comprises different laser probes having different characteristics, wherein the plurality of laser probes further comprises: a first laser probe comprising a first handheld component having a first size or shape, and a second laser probe comprising a second handheld component having a second size or shape that is different than the first size or shape, wherein each of the first laser probe and the second laser probe are each compatible for use with the laser unit.

3. The system of claim 2, wherein the plurality of laser probes are each single-use, disposable probes.
4. The system of claim 2, wherein the fiber optic core of each of the plurality of laser probes further comprises a proximal end detachably couplable to the laser unit and a distal end including a delivery tip configured to emit laser energy from the excimer laser source.
5. The system of claim 3, wherein a first delivery tip of the first laser probe has a first flexibility level and a second delivery tip of the second laser probe has a second flexibility level different from the first flexibility level.
6. The system of claim 2, wherein the first size or shape of the first handheld component comprises a first width of the first handheld component and the second size or shape of the second handheld component comprises a second width of the second handheld component that is different from the first width.
7. The system of claim 2, wherein the first size or shape of the first handheld component comprises a first length of the first handheld component and the second size or shape of the second handheld component comprises a second length of the second handheld component that is different from the first length.
8. The system of claim 2, wherein the first size or shape of the first handheld component comprises a first diameter of the first handheld component and the second size or shape of the second handheld component comprises a second diameter of the second handheld component that is different from the first diameter.
9. The system of claim 2, wherein each of the plurality of laser probes further comprises an outer jacket surrounding the fiber optic core.
10. The system of claim 9, wherein a first outer jacket of the first handheld component comprises a first degree of flexibility and a second outer jacket of the second handheld component comprises a second degree of flexibility different form the first degree of flexibility.
11. The system of claim 2, wherein: the handheld component of each of the plurality of laser probes further comprises a finger grip portion; and the finger grip portion further comprises ridges or depressions.
12. A method for performing intraocular procedures, said method comprising: coupling a first laser probe to a laser unit, wherein the first laser probe is one of a plurality of single-use, disposable laser probes coupleable, one at a time, to the laser unit; applying first laser energy to an eye of a first patient during a first intraocular procedure using the laser unit and the first laser probe; removing the first laser probe from the laser unit; coupling a second laser probe to the laser unit, wherein the second laser probe is one of the plurality of single-use, disposable laser probes; and applying second laser energy to an eye of a second patient during a second intraocular procedure using the laser unit and the second laser probe, wherein the plurality of single-use, disposable laser probes comprise: a handheld component; and a fiber optic core extending through the handheld component, the fiber optic core including a proximal end detachably coupleable to the laser unit and a distal end including a delivery tip for emitting laser energy, transmitted via the fiber optic core from said laser unit when coupled thereto, to a target tissue for ablation thereof, wherein each of said plurality of single-use, disposable laser probes comprises one or more characteristics tailored to a respective user, such that the first laser probe has a first personalization and the second laser probe has a second personalization different from the first personalization.
13. The method of claim 12, wherein the first personalization comprises a first delivery tip with a first flexibility level and the second personalization comprises a second delivery tip with a second flexibility level different from the first flexibility level.
14. The method of claim 12, wherein the first personalization comprises a first delivery tip with a first delivery tip bevel angle and the second personalization comprises a second delivery tip with a first delivery tip bevel angle different from the first delivery tip bevel angle.
15. The method of claim 12, wherein the first personalization comprises a first size of said

handheld component of the first laser probe and the second personalization comprises a second size of said handheld component of the second laser probe different from the first size.

16. The method of claim 12, further comprising an outer jacket surrounding said fiber optic core, wherein said outer jacket has a degree of rigidity or flexibility based on a preference of said respective user.

17. The method of claim 12, wherein: said intraocular procedures are laser trabeculostomies; and said target tissue comprises at least one of a trabecular meshwork or Schlemm's canal.

18. The method of claim 13, further comprising: inserting the first laser probe through a corneal incision of the eye of the first patient, moving the first laser probe through the eye toward a trabecular meshwork of the eye of the first patient, and placing the first delivery tip relative to the trabecular meshwork, such that upon emitting the laser energy from the first delivery tip a channel is created in the trabecular meshwork.

19. A system for use in performing an intraocular procedure, said system comprising: a laser unit comprising a laser source; and a plurality of laser probes coupleable to said laser unit, each laser probe comprising a handheld component and a fiber optic core for transmitting laser energy from said laser source to a target tissue for treatment thereof, wherein each of said plurality of laser probes comprises one or more characteristics tailored to a respective user.

20. The system of claim 19, wherein said intraocular procedure is a laser trabeculostomy.

21. The system of claim 20, wherein said target tissue comprises at least one of a trabecular meshwork or Schlemm's canal.