Claims

1. A phototherapeutic device member, comprising:

a flexible fiber optic tip member having a core for transmitting light, the flexible tip member including a proximal end and a distal end, wherein the diameter of the proximal end is greater than the diameter of the distal end, and wherein the proximal end is curved to cause light entering the flexible tip member through the proximal end to converge; and

an elastic tubular connector sleeve, for mechanically coupling the flexible tip member to a light source, wherein the sleeve includes a proximal end having an opening and a distal end having an opening, the proximal end configured to be stretched and mechanically coupled to the light source;

wherein the flexible fiber optic tip member is partially disposed within the sleeve, such that the distal end of the flexible fiber optic tip member extends distally through the opening in the distal end of the sleeve, and the proximal end of the flexible fiber optic tip member is disposed within the sleeve and between the proximal and distal ends of the sleeve, thereby being configured to position the flexible fiber optic tip member near the light source.

2. The phototherapeutic device member of claim 1, wherein the flexible fiber optic tip member is unitarily formed.

3. The phototherapeutic device member of claim 2, wherein the flexible fiber optic tip member has a rough outer surface configured to allow a portion of light transmitted through the core to diffuse out through the outer surface.

4. The phototherapeutic device member of any one of claims 1 to 3, wherein the flexible fiber optic tip member includes an optical axis extending through the center of the core from the proximal end to the distal end, and wherein light passing through the tip member travels along at least a portion of the optical axis.

5. The phototherapeutic device member of any one of claims 1 to 4, wherein the flexible fiber optic tip member core comprises a glass or a polymer.

6. The phototherapeutic device member of any one of claims 1 to 5, wherein a proximal region of the flexible fiber optic tip member is substantially conical having a base along the proximal end.

7. The phototherapeutic device member of any one of claims 1 to 6, wherein a distal region of the tip member is substantially cylindrical.

8. The phototherapeutic device member of any one of claims 1 to 7, wherein an interior surface of the elastic tubular connector sleeve includes a plurality of ribs extending radially inwards configured to grip the light source.

9. The phototherapeutic device member of any one of claims 1 to 8, wherein a length from the proximal end to a distal end of the flexible fiber optic tip member is between about 10 mm and about 30 mm and/or a diameter at the distal end of the flexible fiber optic tip member is between about 500 microns and about 1500 microns.

10. The phototherapeutic device member of claim 9, wherein the diameter varies along the length of the flexible fiber optic tip member.

11. The phototherapeutic device member of any one of claims 1 to 10, wherein the proximal end of the flexible fiber optic tip member is convex shaped relative to the proximal portion of the flexible fiber optic tip member.

12. The phototherapeutic device member of any one of claims 1 to 11, further comprising the light source and wherein the light source includes one or more light emitting diodes and/or includes a halogen lamp.

13. The phototherapeutic device member of any one of claims 1 to 12, wherein the flexible fiber optic tip member comprises a plurality of bristles at the distal end.

14. The phototherapeutic device member of any one of claims 1 to 13, wherein the flexible fiber optic tip member comprises a photoactive agent.