We Claim:

1) An ophthalmic lens comprising a design that corrects myopia or myopic astigmatism and includes correction factors based on corneal topography or wavefront data acquired before and after orthokeratology treatment wherein the use of the lens slows or stops the progression of myopia.

2) The lens of claim 1 comprising:

A convex surface with a central optic zone surrounded by a peripheral zone further surrounded by an edge zone, and a concave surface which rests on the wearer's eye; wherein the lens power at any location in the optical zone is derived by subtracting the optical power of the eye after orthokeratology treatment from the optical power before orthokeratology treatment, to derive the optical power at each location (x), the optical lens power being useful in controlling or slowing the progression of myopia.

3) The method of Claim 2 wherein the total population data is acquired.

4) The method of Claim 2 wherein sub-population data is acquired.

5) The method of Claim 2 wherein data for an individual is acquired.

6) The method of Claim 2 wherein the data is an average of multiple corneal topography files.

7) The method of Claim 2 wherein the data is an average of multiple wavefront files.

8) The method of Claim 2 wherein the lens design power profile is calculated by averaging all meridians to a rotationally symmetric form.

9) The method of Claim 2 wherein the lens design power profile is calculated by averaging individual meridians to a non-rotationally symmetric form.

10) A method of designing a contact lens comprising:

a) acquiring wavefront data prior to orthokeratology treatment,

b) acquiring wavefront data after orthokeratology treatment,

c) subtracting the pre treatment data from the post treatment data,

d) generating a lens power profile that includes correction factors for the retardation of myopia progression.

11) The method of Claim 10 wherein the wavefront data is converted to a radial power map.

12) An article comprising computer-usable medium having computer readable instructions stored thereon for execution by a processor to perform a method comprising: generating a lens design by converting corneal topography data characterizing an eye to a radial power map and generating a lens power profile that includes correction factors based on corneal topography.

13) The article of claim 12 that produces a lens design for a lens with a convex surface with a central optic zone surrounded by a peripheral zone which is further surrounded by an edge zone, and a concave surface which rests on the wearer's eye.

14) The article of claim 12 wherein the lens power at any location in the optical zone is described by converting corneal topography data before and after orthokeratology treatment to radial power maps and subtracting the pre treatment map from the post treatment map to generate a corneal topography derived power at each location (x).

15) The article of claim 12 wherein the lens power at any location in the optical zone is described by converting ocular wavefront data before and after orthokeratology treatment to radial power maps and subtracting the pre treatment map from the post treatment map to generate a corneal topography derived power at each location (x).

16) An ophthalmic lens for the slowing of myopia progression comprising:

a) a convex surface with a central optic zone surrounded by a peripheral zone which is further surrounded by an edge zone, and a concave surface which rests on the wearer's eye;

b) the central optic zone containing an inner disc, and a plurality of annuli; and a lens power at any location in the optical zone is described by subtracting the optical power of the eye after orthokeratology treatment from the optical power before orthokeratology treatment; the lenses made using these designs are useful in controlling or slowing the progression of myopia.

17) The lens of claim 16 wherein the inner disc has a diameter less than 2 mm.

18) The lens of claim 16 wherein the optical power of the inner disc is substantially constant.

19) The lens of claim 16 wherein the first annulus has an outer diameter between 6.0 to 7.0 mm.

20) The lens of claim 16 wherein the optical power of the first annulus at a diameter of 4 mm is between +0.5 and +1.5 D.

21) The lens of claim 16 wherein the optical power of the first annulus at a diameter of 6.5 mm is between +1.5 and +5.5 D.

22) The lens of claim 16, wherein the second annulus surrounding the first annulus has an outer diameter between 7.25 and 7.75 mm.

23) The lens of claim 16 wherein the optical power of the second annulus decreases smoothly from the power found at the edge of the first annulus smoothly to between +1.5 and +4.5 D.

24) The lens of claim 16, wherein the third annulus surrounding the second annulus has an outer diameter between 7.5 and 8.5 mm.

25) The lens of claim 16, wherein the optical power of the fourth annulus is substantially constant with the power found at the edge of the second annulus.

26) An ophthalmic lens for the slowing of myopia progression comprising:

a) a convex surface with a central optic zone surrounded by a peripheral zone which is further surrounded by an edge zone, and a concave surface which rests on the wearer's eye;

b) the central optic zone containing an inner disc, and a plurality of annuli; and a lens power at any location in the optical zone is described by subtracting the optical power of the eye after orthokeratology treatment from the optical power before orthokeratology treatment; the lenses made using these designs are useful in controlling or slowing the progression of myopia.

27) The lens of claim 26 wherein the inner disc has a diameter less than 2 mm.

28) The lens of claim 26 wherein the optical power of the inner disc is substantially constant.

29) The lens of claim 26 wherein the first annulus has an outer diameter between 6.0 to 7.0 mm.

30) The lens of claim 26 wherein the optical power of the first annulus is described by the equation: Power = $0.486x^6 - 5.8447x^5 + 27.568x^4 - 65.028x^3 + 81.52x^2 - 51.447x + 12.773$ where x is the radial distance from the center of the lens.

31) The lens of claim 26, wherein the second annulus surrounding the first annulus has an outer diameter between 7.25 and 7.75 mm.

32) The lens of claim 26 wherein the optical power of the second annulus decreases smoothly from the power found at the edge of the first annulus smoothly to between +2.00 and +3.25 D.

33) The lens of claim 26, wherein the third annulus surrounding the second annulus has an outer diameter between 7.5 and 8.5 mm.

34) The lens of claim 26, wherein the optical power of the fourth annulus is substantially constant with the power found at the edge of the second annulus.

35) An ophthalmic lens for the slowing of myopia progression wherein at least a portion of the optical zone is described by the equation: Power = $0.486x^6 - 5.8447x^5 + 27.568x^4 - 65.028x^3 + 81.52x^2 - 51.447x + 12.773$ where x is the radial distance from the center of the lens.

36) An ophthalmic lens for the slowing of myopia progression comprising:

a) a convex surface with a central optic zone surrounded by a peripheral zone which is further surrounded by an edge zone, and a concave surface which rests on the wearer's eye;

b) the central optic zone containing an inner disc, and a plurality of annuli; and a lens power at any location in the optical zone is a myopia controlling or slowing amount of power.

37) The lens of claim 36 wherein the inner disc has a diameter less than 2 mm.

38) The lens of claim 36 wherein the optical power of the inner disc is substantially constant.

39) The lens of claim 36 wherein the first annulus has an outer diameter between 6.0 to 7.0 mm.

40) The lens of claim 36 wherein the optical power of the first annulus is described by the equation: Power = $0.486x^6 - 5.8447x^5 + 27.568x^4 - 65.028x^3 + 81.52x^2 - 51.447x + 12.773$ where x is the radial distance from the center of the lens.

41) The lens of claim 36, wherein the second annulus surrounding the first annulus has an outer diameter between 7.25 and 7.75 mm.

42) The lens of claim 36 wherein the optical power of the second annulus decreases smoothly from the power found at the edge of the first annulus smoothly to between +2.00 and +3.25 D.

43) The lens of claim 36, wherein the third annulus surrounding the second annulus has an outer diameter between 7.5 and 8.5 mm.

44) The lens of claim 36, wherein the optical power of the fourth annulus is substantially constant with the power found at the edge of the second annulus.

45) An ophthalmic lens for the slowing of myopia progression wherein at least a portion of the optical zone is described by the equation: Power = $0.486x^6 - 5.8447x^5 + 27.568x^4 - 65.028x^3 + 81.52x^2 - 51.447x + 12.773$ where x is the radial distance from the center of the lens.

We Claim:

1) A method of designing and forming a contact lens for retarding myopia progression, the method comprising the steps of:
    a) acquiring and averaging ocular wavefront data maps from an individual's eyes prior to orthokeratology treatment;
    b) converting the ocular wavefront data maps from the individual's eyes prior to orthokeratology treatment to a pre-treatment refractive power map by calculating the powers based on the radial slopes along the visual axis through the pupil center of the individual's eyes;
    c) acquiring and averaging ocular wavefront data maps from the individual's eyes after orthokeratology treatment;
    d) converting the ocular wavefront data maps from the individual's eyes after orthokeratology treatment to a post treatment refractive power map by calculating the powers based on the radial slopes along the visual axis through the pupil center of the individual's eyes;
    e) subtracting the pre-treatment refractive power map from the post treatment refractive power map to create a treatment map;
    f) averaging all of meridians of the treatment map to generate a rotationally symmetric power map;
    g) alternately averaging the individual meridians of the treatment map together to generate a non-rotationally symmetric power map;
    h) trimming the rotationally and non-rotationally symmetric power-maps to a diameter substantially corresponding to an optic zone of a contact lens; and
    i) forming a soft contact lens having an optic zone with the power maps incorporated therein.