

GERIATRICS AND THE OPTOMETRIST

By

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Geriatrics, that branch of the broad field of Gerontology which deals with physiologic, psychologic, and pathologic change of the aging individual, while a rather new and woefully undeveloped science, is nevertheless of the greatest interest to the Optometrist, since the individual past the age of 45 is so hopelessly lost without our services. (The term "Geriatrics" was coined by Mascher in 1909).

Who and what are these people? Why do they warrant any special consideration? Who are they? In the time of the Roman Empire or the year 1, the life expectancy at birth was 23 years. Time gradually increased this figure until in 1850 life expectancy was 40 years in some States. By 1900, this had risen to 47 years for the U.S. as a whole and the next 30 years brought the phenomenal rise to 60 years for white members of the American population. Looking at the data from a different angle, in 1900 17% of the population was over 45 years old, but by 1940, 20 ½ % or 33,450,000 of our 130,000,000 people had reached this age, and if the present rate of increase continues, fully 50% of our population will have reached or passed their 45th year by 1990.

From still another angle, these are the people who have passed the biological peak, their families have been reared and have left the home, their physical energies are beginning to fade and leisure time is more abundant, with a much greater demand on the visual functions. The glandular distortions of the climacteric and the result of wear and tear of earlier and more vigorous activity are beginning to show; and with a diminished ability of bodily tissues to repair themselves general health is on a much more precarious footing. Much as we, individually, refuse to admit a failing of physical powers, common sense, and if that be absent, old Mother Nature who in no uncertain terms makes us realize that she holds the whip hand, shifts our interests from the mere strenuous pursuits to those involving the higher brain centers. It is an interesting fact that while the peak of physical energy is around the age of 30 years, that of the intellect is not reached until about 20 years later and the curve of the rise to and the fall from this peak is much less abrupt than is that of the physical peak.

As we look at the picture from this generalized standpoint, we see how important is going to be the work of such groups as ours who are trying to find out the underlying facts of this geriatric period and who, by so doing, can present such data and techniques as will best maintain and prolong these failing physical powers so necessary to allow this intellectual world to come to its full fruition. Does it not strike you in what a commanding position the Optometrist sits since it is to us that the first admitted failure presents itself? How many times have patients in their late 30's told you that they had never been to a doctor in their lives and yet, there they are, presenting to you their first failure of function and asking for help, not because they are sick or because of disease or misuse. They are older and they know it and it is the first sign that they are willing to admit. Do you appreciate the opportunity we have of starting them on the road that may lead to a long period of usefulness and may I emphasize happiness, or one of revolt both mental and physical?

Then, if this is our province, by knowing these people, by knowing what advice to give, by knowing what techniques in our own and other fields should be employed, we can be prepared to give them the benefit of our own research as well as that of the allied professions. We must know and they must know that we know, we must know anatomy, we must know physiology, we must know psychology And we must know sociology. When you consider that the average intelligence of the American adult (the highest intellectual average of any country in the world today) is only that of a 6th grade child, we must be patient, we must be sympathetic, and because of our knowledge, we must be positive.

One other thought I would like to inject at his point. Most of us, at first digging into this work, are imbued with the idea of finding some way to prolong this physical vigor. Yes, by following a rigid regime of diet, exercise, vitamin feeding, glandular feeding, etc., we may hold this physiological age 3, 5, or even 10 years behind the chronological age. But what of it? The crash is apt to be more bitter when it comes, and come it surely will. No, I think our idea should rather be to help those we contact to learn, to grow older gracefully, resignedly, and happily, if that be possible, so that the emphasis may drift more easily to the intellectual fields of music, art, literature, creation of ideas, etc., rather than a continuous turmoil because of physical fears. Therefore, let us take a little more critical look at these people.

In the early days, it used to be considered that the baby was "the little man" but pediatrics has proved that this is anything but true, and as geriatric research is beginning to find out, the aged is not just "the older man". From the time of conception, all cells have the power of reproduction by the simple process of rapid division, one cell dividing to make two, until the mature structure is completed at which time, in some tissues, the cell division is slowed to a point necessary to merely maintain the structure as individual cells are destroyed or injured; in other tissues, dead or atrophied cells are replaced by scar tissue, while in nerve tissue, there is no replacement. As age continues, infiltrations occur increasing the density of bodily fluids as well as the tissues themselves, so that nutrition of the cells may be interfered with and the cells themselves become smaller and less active; connective tissue becomes more dense and often actually replaces many cells which have atrophied because of disease, non-use, over-use, or lack of nourishment, so that actual tissue structure under the microscope is much different in texture at varying ages. The dentist can tell the approximate age of his patient by the texture of the jawbone as seen in the radiograph, while the elasticity of the crystalline lens is an even closer index.

So we find that the actual bodily structure of these people differs, not only as to size and number of individual cells but also in their ability to function.

To date, all studies so far made, seem to indicate that these changes in tissue, while their incidence in individuals may vary, are inevitable. Someone has made an interest table:

Biologic changes	Chronologic age	Variance
Birth	9 mos + or - 2 wks	4 weeks
Puberty	12 yrs + or - 2 yrs	4 years
Fertility	19 yrs + or - 3 yrs	6 years
Climacteric	45 yrs + or - 5 yrs	10 years
Senility	70 yrs + or - 10 yrs	20 years

Note the increasing chronologic spread at which these life periods may appear.

To me, at least, it seems that one of our greatest opportunities to give help to our patients entering these successive periods is to help them to understand what is going on within themselves so that they may know what to expect, and thus avoid those feats which so frequently upset the whole balance of their nervous systems.

A glance back at the increasing percentages of our population entering the geriatric period and a look at the table given, brings up the whole sociological aspect of these people. This field is too broad in itself to more than suggest in this paper, but one or two points might be mentioned as they touch on our work. Before the last war, industry had set the deadline of 45 years as the age after which a man could not be hired by most companies. If this deadline is again instituted, it will mean that since, by 1990 25% of our population will be under 19 years of age and 50% over the 45 year mark, the remaining 25% of employables will have to support the 75%. The thing is silly on the face of it and the tremendous productive power of the older men and women during the war period may prevent any such deadline being again established. But in either case, we have an immense field for visual geriatrics since these men, if they stay in industry, must be able to maintain visual efficiency and we can assist in the one little item of job placement alone if we can impress on management and the jobholders themselves that no bifocal wearer should be given a manual job above the line of his eyes. He should be doing bench work or at least a job where the eyes will be turned downward, not upward. On the other hand, if these people are taken off the payrolls, the whole field of adult education will be broadened and this too is very dependent on visual efficiency and a serious effort should be made to bring about a closer cooperation between educators who will have responsibility in this field with groups such as ours.

Thus, if the Optometrist is to fulfill his full responsibility, he should prepare himself so that by knowing much of the problems of this period, by his skill, his advice, his sympathy and his cooperation, he can relieve much of the dread and uncertainty with which most people enter the field of declining years.