

EYE - SCREENING TESTS on Workers of Both Sexes in Vienna

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April, 1999

Since the 1st of January 1995, there are new Austrian statutory provisions to protect employees in Austria, under the Employee Protection Act, that strictly prescribes examinations of eyes and vision ('ASchG'/1995, §68 (3) paragraphs 2, 3, and 4). Therefore, employees required to use a PC during a reasonable part of their working day have the right to an eye examination before beginning their job as well as at regular intervals during their employment or at the moment that they begin to suffer visual ailments. This includes the right to be referred to an ophthalmologist if it seems necessary.

THE TEST

During the 1996 and 1997, in the firm in which I have an office, all new employees at a working place with a PC were screened using a Rodenstock disc No 176 and 173.

They were tested for:

- visual acuity,
- sense of colour,
- stereopsis and
- fusion.

All other employees were permitted to participate if they chose and, accordingly, 25% of those tested were employees who volunteered.

In addition, all could take part voluntarily in the "Schirmer – Test" to determine if one suffers from 'dry eyes.'

All participants were required to use their personal corrective lenses during the tests.

In this study there were no selection criteria and, thus, no grounds to exclude.

TEST CONSEQUENCES

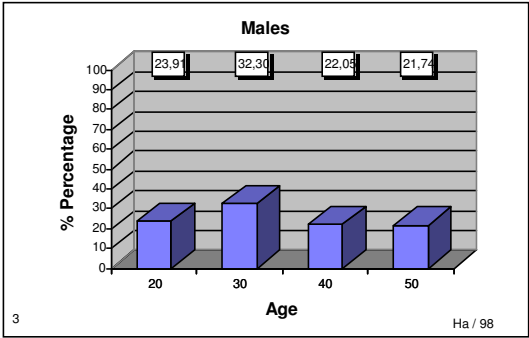
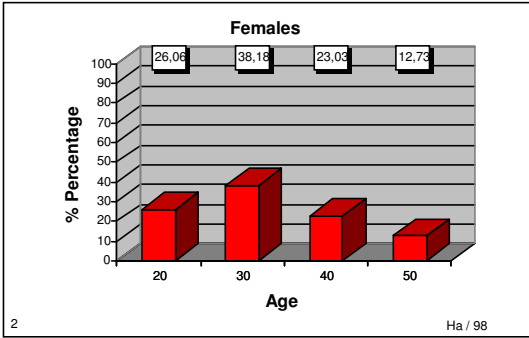
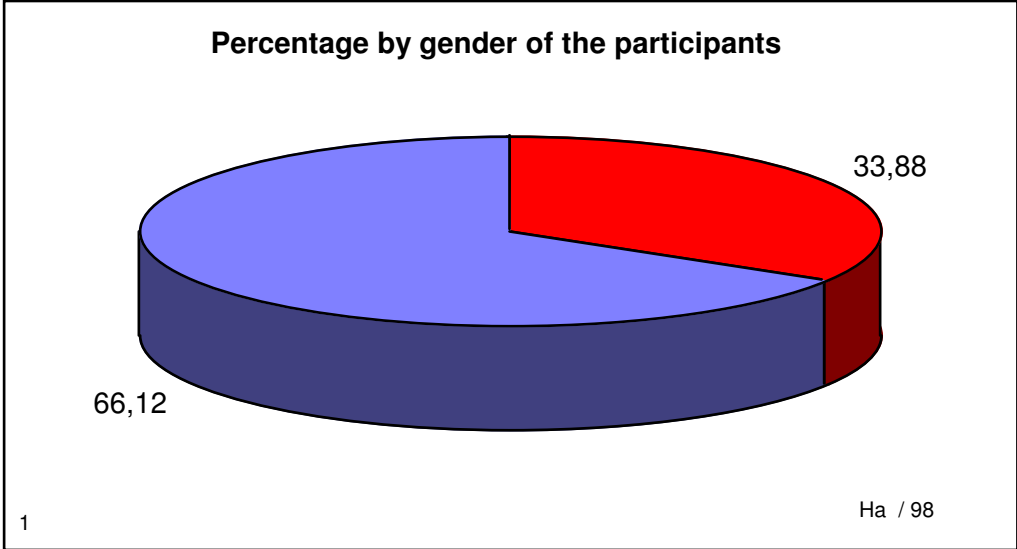
All employees with changes or an unclear state in respect of the before mentioned tests were directed to see an ophthalmologist.

DATA

In total 487 people between the ages of 20 - 60 were examined.

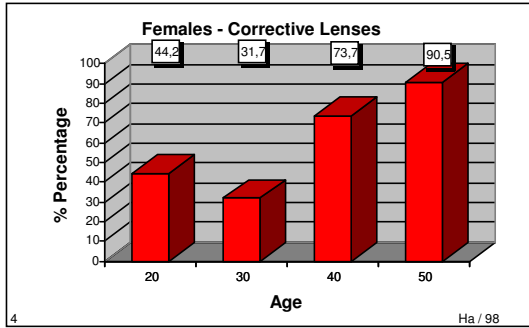
There were: - 165 females, i.e.1/3
 - 322 males, i.e.2/3.

PERCENTAGES BY GENDER OF THE VOLUNTEERS

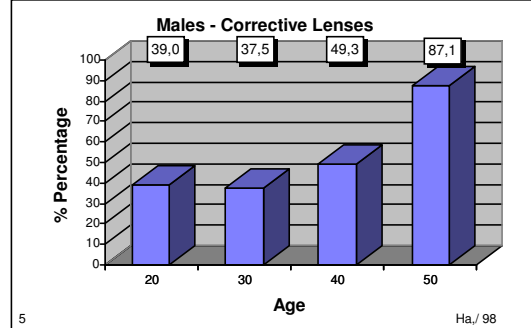


RESULTS

Corrective Lenses:

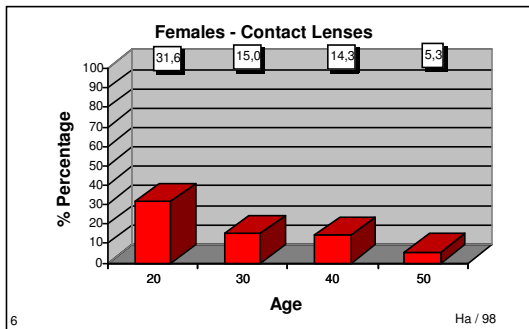


Total: 52.1%

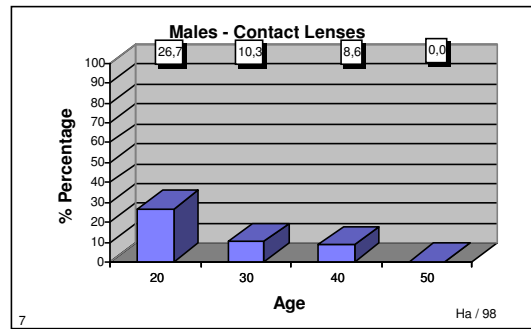


51.2%

Contact Lenses:

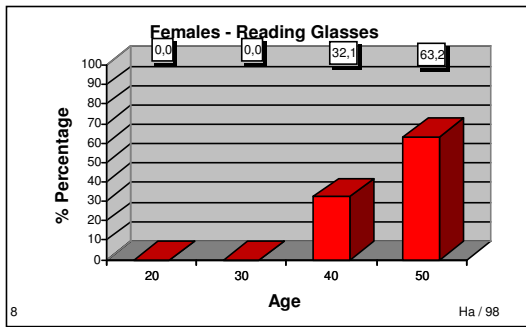


Total: 16.3%



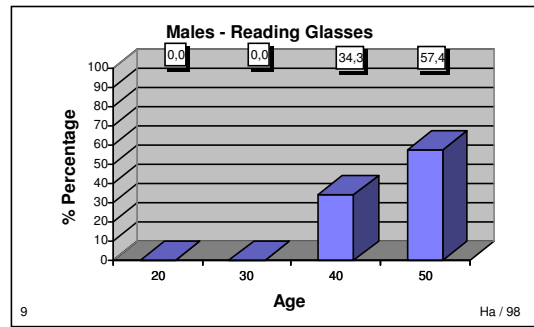
9.1%

Reading Glasses:



8

Ha / 98



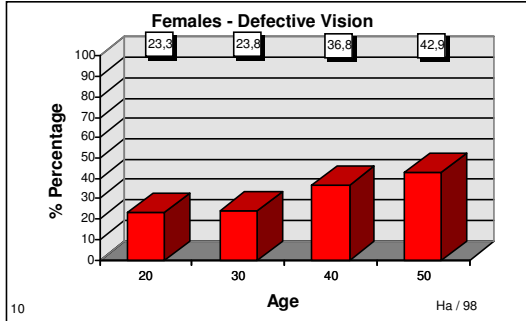
9

Ha / 98

Total: 24.4%

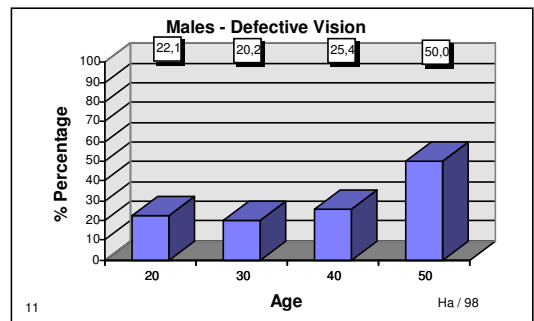
28.5%

Among those tested (with or without correctives lenses) a **visual acuity < 0.8** was determined.



10

Ha / 98



11

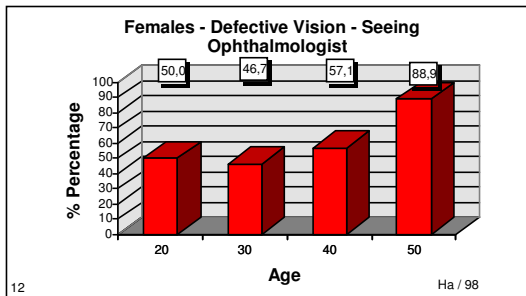
Ha / 98

Total: 29.1%

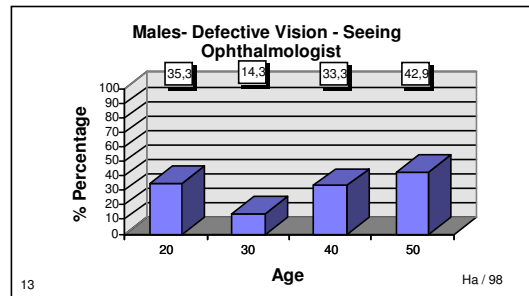
28.3%

These percentages include all patients with at least one change in visual acuity < 0.8.

Those participants with defective vision **seeing an ophthalmologist**:

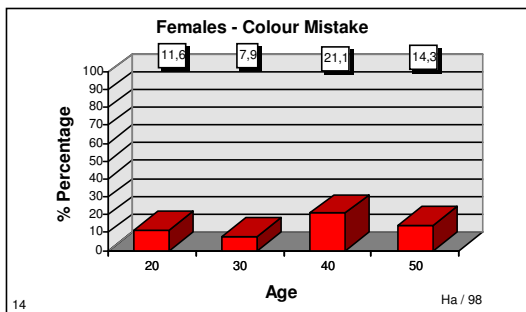


Total: 58.3%

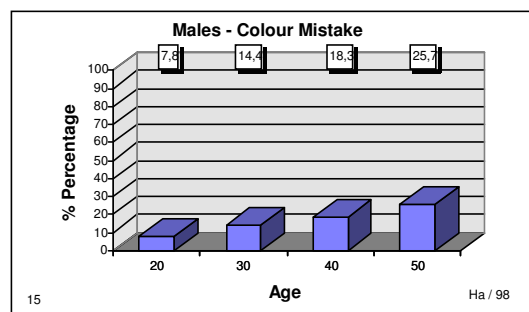


33.0%

Mistake in the sense of colour:

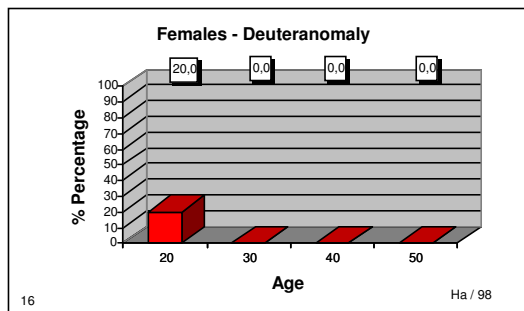


Total: 12.7%

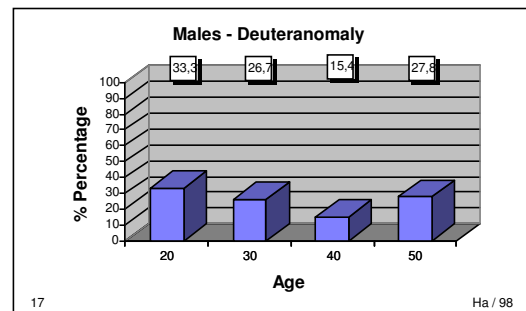


16.1%

In respect of deuteranomaly:

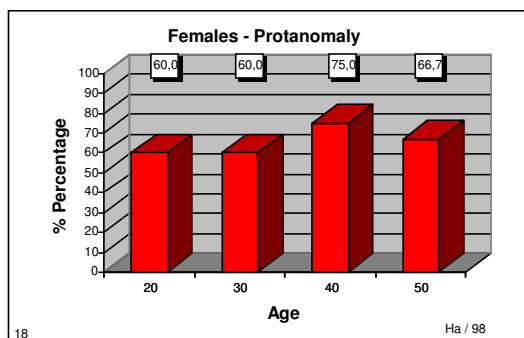


Total: 4.8%

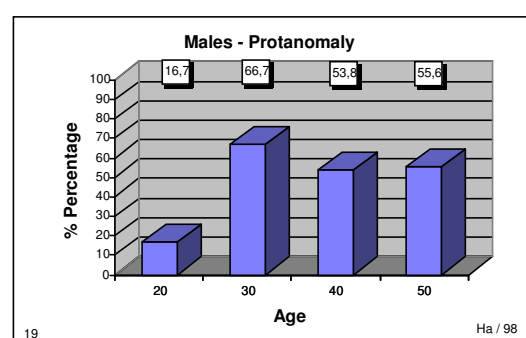


25.0%

and protoanomaly:

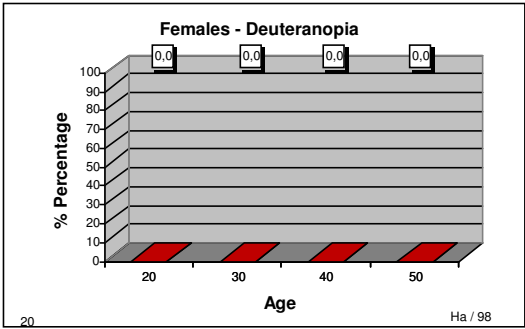


Total: 66.7%

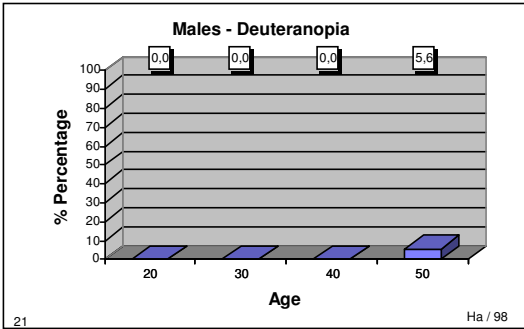


53.8%

Deuteranopy:

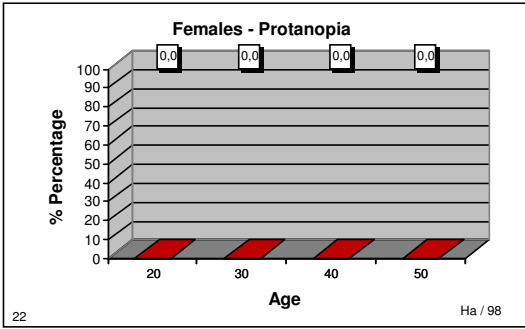


Total: 0.0%

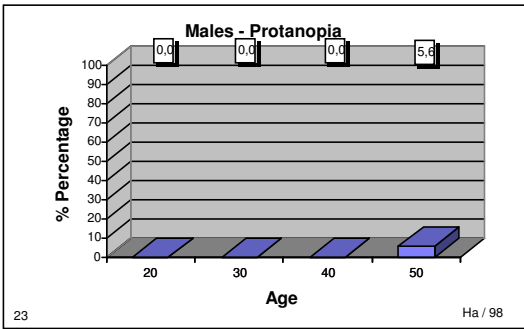


1.9%

Protanopy:



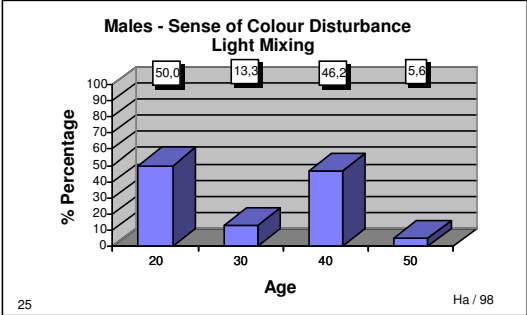
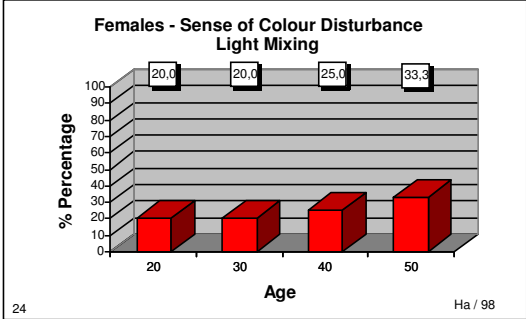
Total: 0.0%



1.9%

Mixing Disturbances in the Sense of Colour:

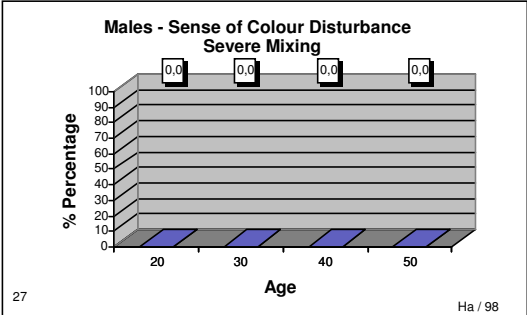
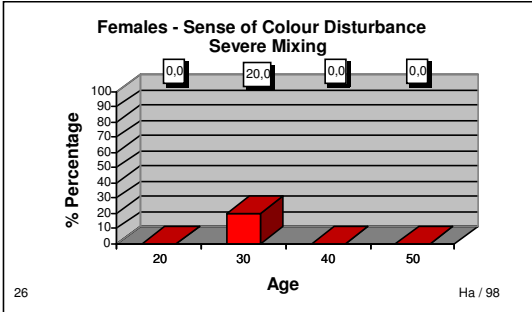
Light:



Total: 23.8%

23.1%

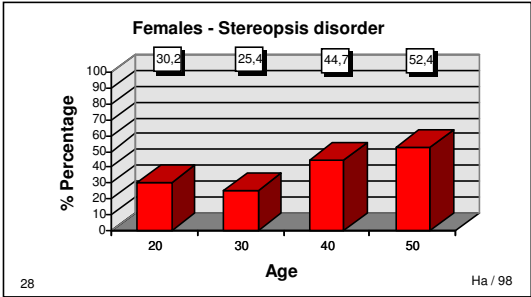
Severe:



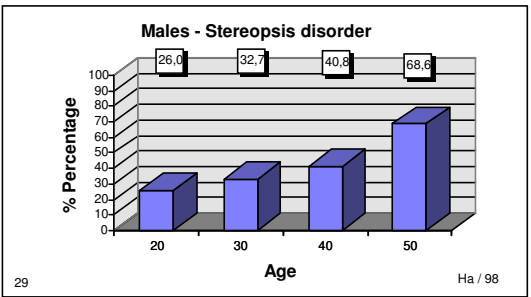
Total: 4.8%

0.0%

A very interesting fact was that no participant knew of any **disturbance or disorder of stereopsis**:



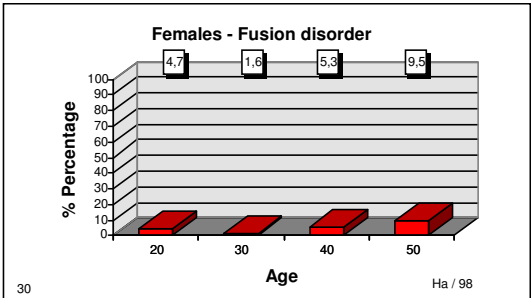
Total: 34.5%



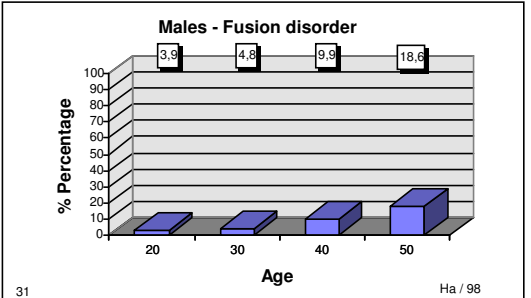
40.7%

Some knew by personal experience that they had had no different visual perceptions on using 3-D glasses.

Also of note was that no participant was aware of suffering from a **fusion disorder**:

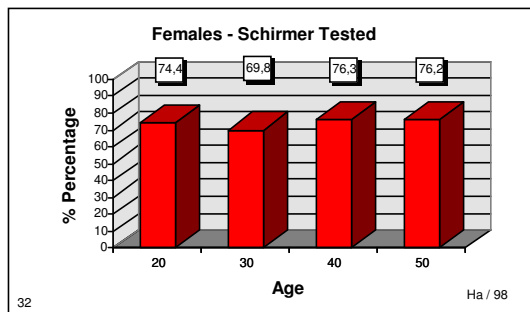


Total: 4.2%

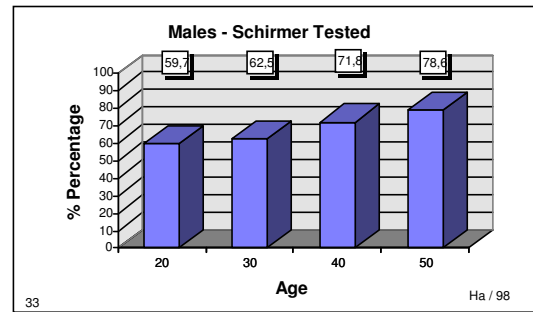


8.7%

The “Schirmer Test” was refused by some due to fear of pain. The following participated:

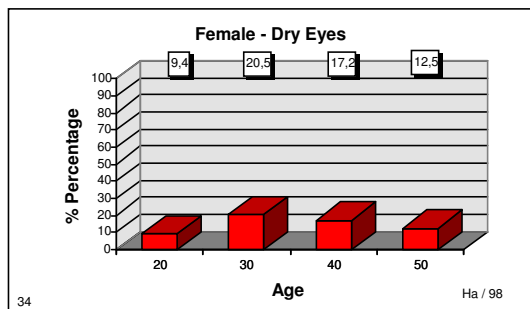


Total: 73.3%

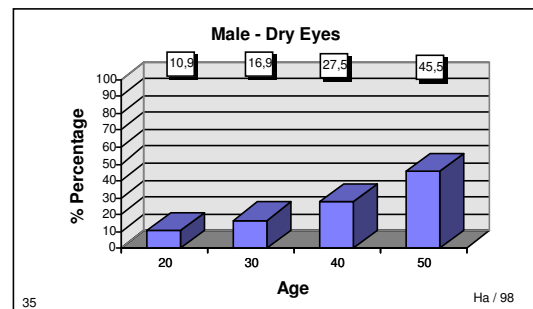


67.4%

‘Dry Eyes’ were observed:



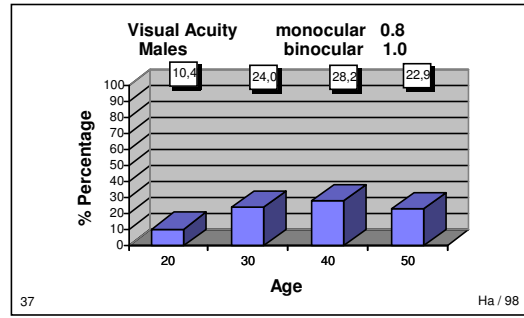
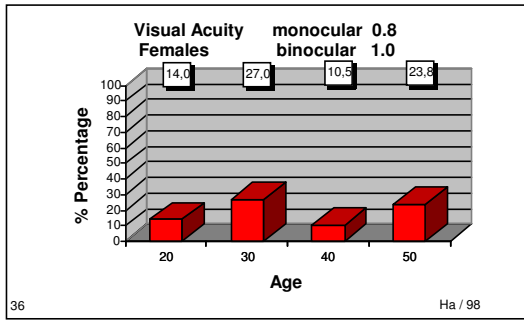
Total: 15.7%



25.3%

All those having ‘dry eyes’ received eye drops to moisturize the conjunctiva. (Eye drops were accepted gratefully.)

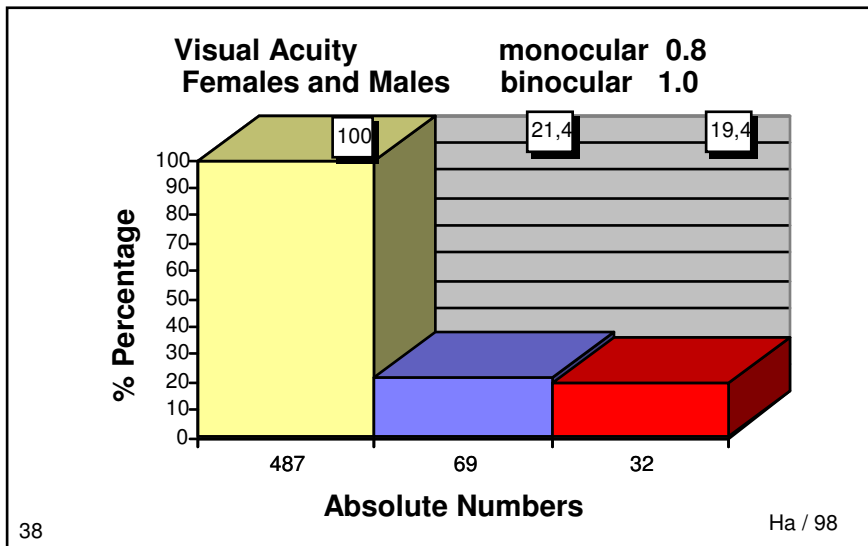
In addition, the data of those employees who had a **visual acuity of 0.8** in one or both eyes in respect of near or farsightedness **but** who achieved a **binocular visual acuity of 1.0**.



Total: 19.4%

21.4%

Further, 19.4% of the females and 21.4% of the males could **correct a monocular change of visual acuity of 0.8** and therefore did not require corrective lenses at this time.



RESULTS

4 / 5 There was a highly significant difference between males and females concerning the question whether or not to wear glasses. Females required glasses more often particularly in the 5th decade.

6 / 7 Concerning the frequency of the acceptance of contact lenses no significant difference could be determined between males and females due to the small test sample; however, it can be pointed out that acceptance of contacts lenses was greatest during the 3rd decade.

8 / 9 There was no significant gender difference between those wearing reading glasses in the 5th and 6th decades.

10 / 11 A glimpse at the changes in visual acuity in the average population did not indicate significant gender differences.

Only females in the age group from 40 - 49 required highly significantly more often glasses than men who needed mostly reading glasses.

12 / 13 In respect of the compliance of the participants to follow advice to visit an ophthalmologist for further examinations, females complied more often than males.

This was demonstrated both in each decade and on the average.

14 / 15 A significant difference in the sense of colour in comparison to the average population was demonstrated. Males underwent changes more often than females. At the age of 50 the difference was highly significant, as well as being highly significant during the 3rd decade.

16 / 17 Concerning deuteranomaly, it appeared that males suffer more often than females. The low number of participants precludes statistical significant statements.

18 / 19 However, this was quite different with protoanomaly.

Females suffered highly significantly more often than males.

Among the groups: 20's h. s. F >> M

30's h. s.

40's h. s.

50 s s.

20 / 21

22 / 23

24 / 25

26 / 27

Since there were relatively low numbers of participants suffering from deuteranopy, protanopy and mixed changes in the sense of colour, it was not possible to make precise statements.

28 / 29 Concerning stereopsis, no difference to the average population could be found. Only in the 6th decade did the males exhibit highly significantly more changes than females.

30 / 31 Changes in fusion could significantly more often be observed in the males particularly at the age of 50 when men encountered highly significantly more problems.

32 / 33 The acceptance of the Schirmer Test was the same in both sexes. However, the 20-year old males refused more often.

34 / 35 The diagnosis 'dry eyes' is highly significantly more often found in males.

Among the 20 and 30-year olds there was no significant difference; by 40 the males suffered significantly more, and – reaching the 50 - highly significantly more.

36 / 37 The binocular capacity to correct a monocular change of visual acuity of 0.8 was highly significantly more often in males.

FURTHER EXAMINATIONS

By reason of the legal requirements and the positive acceptance of these tests, I will schedule screening tests for everyone every two years. Of course, all new employees will be examined on commencement of the employment. For this latter group, particular attention will be given to the young employees between the ages of 15 to 20 years.

CONCLUSION

As noticeable differences were found between males and females especially in their respective compliance with the direction to visit an ophthalmologists, one aspect of my work in future time will be the motivation of employees to understand the necessity of using corrective lenses.

Further on we should keep in mind, as shown here and by other colleagues, working with a PC does not change visual acuity - provided - good ergonomic situations exist.