Siegfried R. Bratner, Holger A. Jakstat

Teaching and Learning visual tooth shade discrimination – a Curriculum

Poliklinik für
Zahnärztliche Prothetik
und Werkstoffkunde
(Dir.: Prof. Dr. Th. Reiber)

UNIVERSITÄT LEIPZIG

Color Discrimination in Dentistry

Visual vs. electronic Tooth Color Discrimination

WISSENSCHAFTLICHE STELLUNGNAHME

Deutsche Gesellschaft für Zahn- Mund- und Kieferheilkunde

gegr. 1859

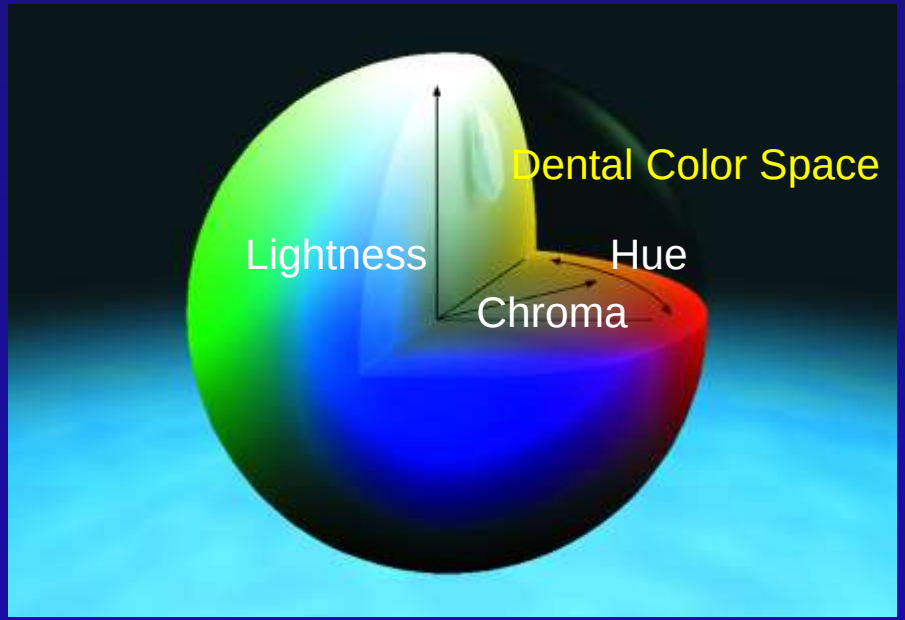
Die Bestimmung der Zahnfarbe

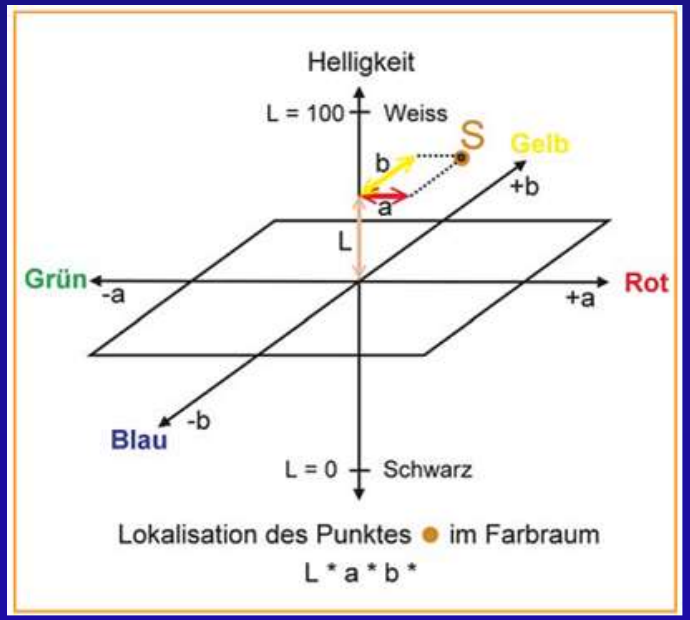
Stellungnahme der DGZMK

Zur Nachahmung natürlicher Zähne werden von der Industrie Kunststoff- und Keramiksysteme angeboten, die bei fachgerechter Verarbeitung höchsten ästhetischen Anforderungen gerecht werden. Ein wesentliches Qualitätsmerkmal hierfür ist die Übereinstimmung der Farbe von natürlichen und künstlichen Zähnen, Füllungen bzw. Verblendungen. Voraussetzung dafür ist eine Zahnfarbbestimmung

Sources:
https://www.vita-zahnfabrik.com/de/Easyshade-Advance-40-7699,27568,5851.html
http://www.dgzmk.de/zahnaerzte/wissenschaft-forschung/stellungnahmen/archiv/details/document/bestimmung-der-zahnfarbe.html

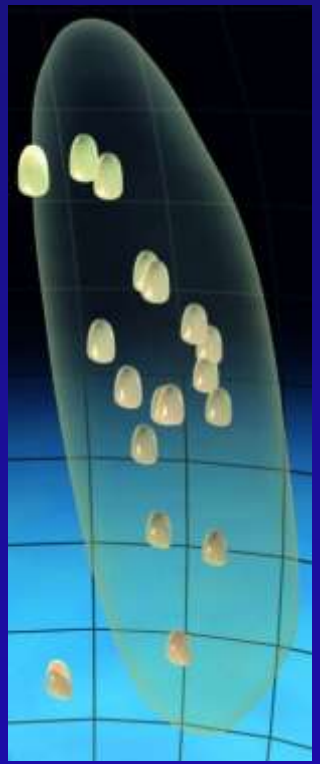
Color Discrimination in Dentistry

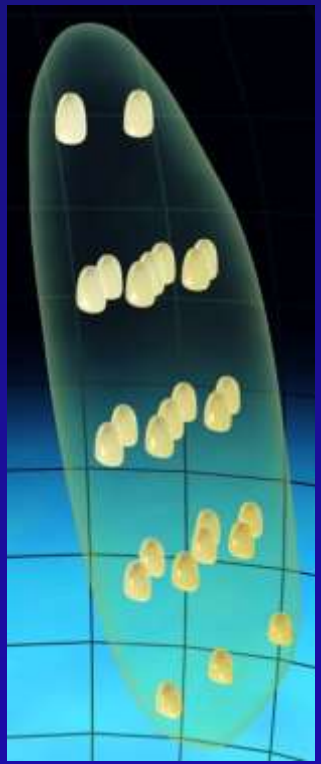




Pictures:
©Vita Zahnfabrik H. Rauter Gmbh & Co. KG, processed
Baltzer, A. und V. Kaufmann-Jinoian (2004): Die Bestimmung der Zahnfarben. Quintessenz Zahntech **30**(7): 726-740

Color Discrimination in Dentistry





Pictures:
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Color Discrimination in Dentistry

Diagnosis of Color Deficiency

Ishihara-Test

1879-1963

Plate No.1

Version 1:

Which number(s) / which letter(s) can you identify?

A->( ) 9
B->( ) no number, no letter
C->( ) 6
D->( ) 96
E->( ) 9B

Version 2:

Which number(s) / which letter(s) can you identify?

A->( ) no number, no letter
B->( ) B
C->( ) 5
D->( ) 8
E->( ) 6

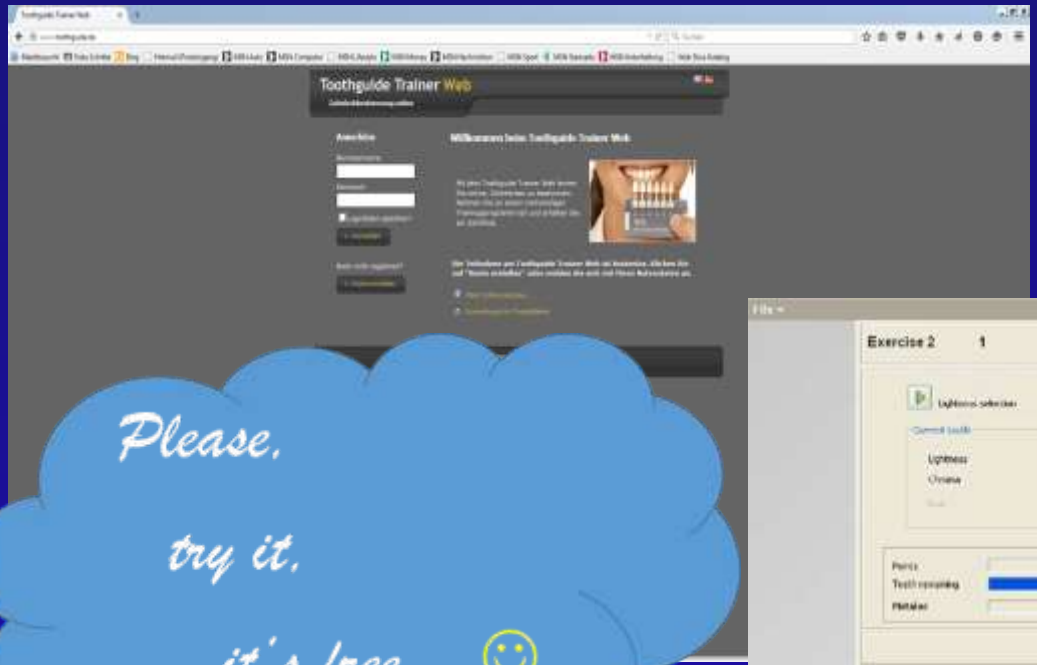
Picture: http://fitrahmata.wordpress.com/2012/11/29/mengenal-dr-shinobu-ishihara-penemu-buku-buta-warna/

Ishihara-Test with a Data Projector

- Execution of the Test:
  - 25 Ishihara Plates
  - 2 Groups of Subjects
  - Projection 15 s per Plate
  - Duration of the Test: 7 minutes
  - Criterion for Abnormality: 3 Errors

Bratner SR, Vichi A, Borbély J, Jakstat HA: Der Ishihara-Test als Beamerprojektion zum Screening der Farbtüchtigkeit in der Zahnmedizin. Deutsche Zahnärztliche Zeitschrift 65, 29-33 (2010)

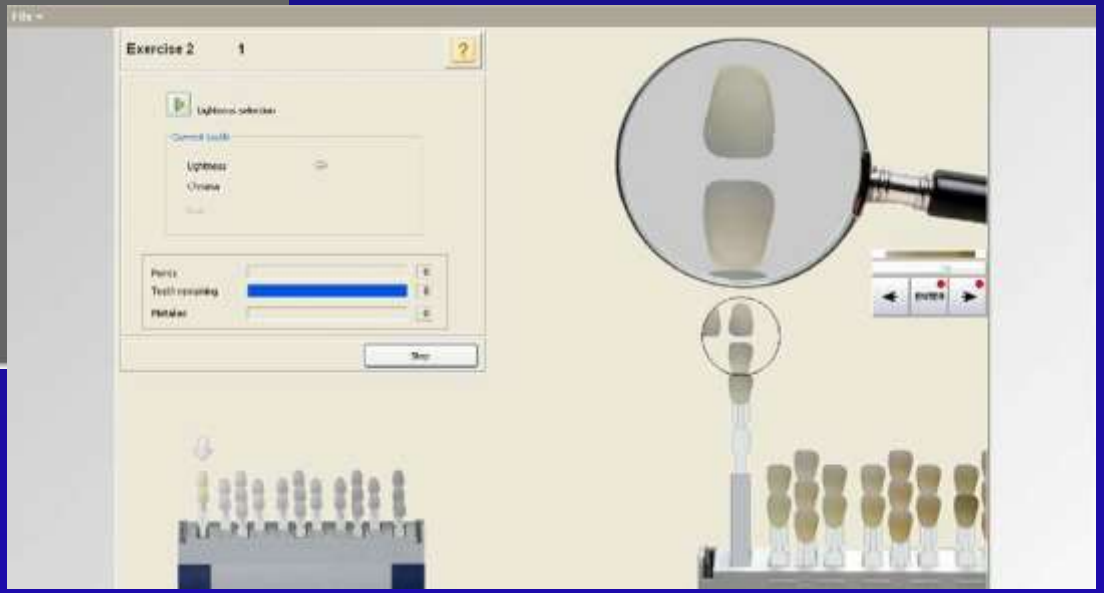
ToothguideTrainerWeb (Prof. Jakstat)



Please,

try it,

it's free ☺

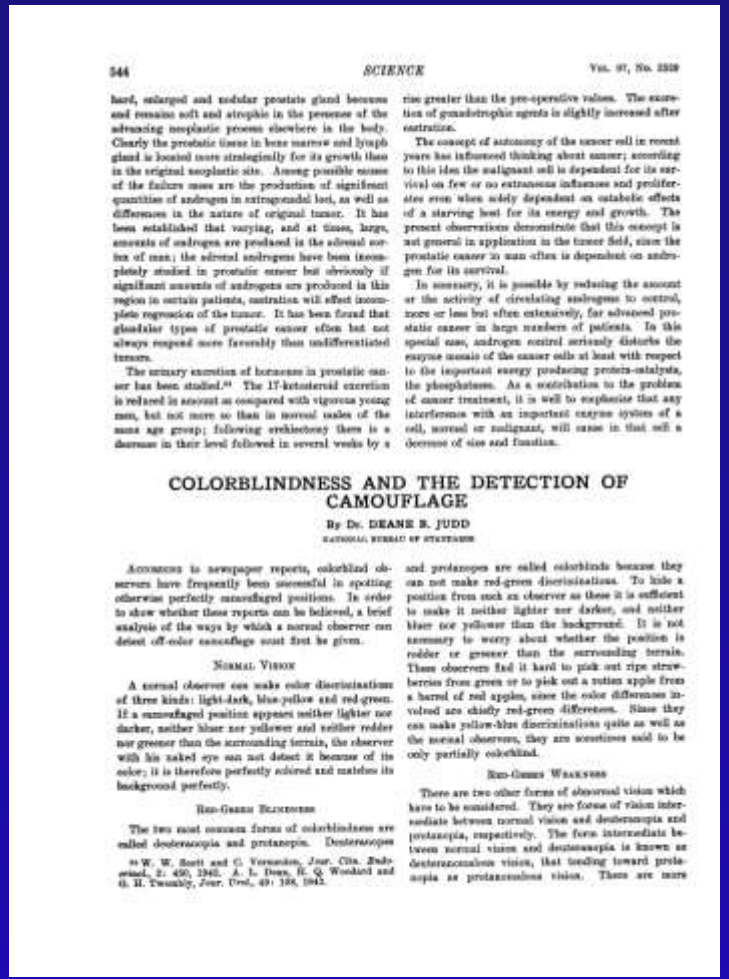


www.toothguide.de

ToothguideTrainingBox (Prof. Jakstat)

Haddad HJ, Jakstat HA, Arnetzl G et al.: Does gender and experience influence shade matching quality? J Dent 37 Suppl 1, e40-4 (2009)

Color Discrimination and Red-Green-Deficiency



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hard, enlarged and nodular prostate gland becomes and remains soft and atrophic in the presence of the advancing neoplastic process elsewhere in the body. Clearly the prostatic tissue in bone marrow and lymph gland is located more strategically for its growth than in the original neoplastic site. Among possible causes of the failure cases are the production of significant quantities of androgen in extraprostatic loci, as well as differences in the nature of original tumor. It has been established that varying, and at times, large, amounts of androgen are produced in the adrenal cortex of man; the adrenal androgens have been incompletely studied in prostatic cancer but obviously if significant amounts of androgens are produced in this region in certain patients, castration will effect incomplete regression of the tumor. It has been found that glandular types of prostatic cancer often but not always respond more favorably than undifferentiated tumors.

The urinary excretion of hormones in prostatic cancer has been studied.[14] The 17-ketosteroid excretion is reduced in amount as compared with vigorous young men, but not more so than in normal males of the same age group; following orchiectomy there is a decrease in their level followed in several weeks by a rise greater than the pre-operative values. The excretion of gonadotrophic agents is slightly increased after castration.

The concept of autonomy of the cancer cell in recent years has influenced thinking about cancer; according to this idea the malignant cell is dependent for its survival on few or no extraneous influences and proliferates even when solely dependent on catabolic effects of a starving host for its energy and growth. The present observations demonstrate that this concept is not general in application in the tumor field, since the prostatic cancer in man often is dependent on androgen for its survival.

In summary, it is possible by reducing the amount or the activity of circulating androgens to control, more or less but often extensively, far advanced prostatic cancer in large numbers of patients. In this special case, androgen control seriously disturbs the enzyme mosaic of the cancer cells at least with respect to the important energy producing protein-catalysts, the phosphatases. As a contribution to the problem of cancer treatment, it is well to emphasize that any interference with an important enzyme system of a cell, normal or malignant, will cause in that cell a decrease of size and function.

COLORBLINDNESS AND THE DETECTION OF CAMOUFLAGE

By Dr. DEANE B. JUDD
NATIONAL BUREAU OF STANDARDS

According to newspaper reports, colorblind observers have frequently been successful in spotting otherwise perfectly camouflaged positions. In order to show whether these reports can be believed, a brief analysis of the ways by which a normal observer can detect off-color camouflage must first be given.

Normal Vision

A normal observer can make color discriminations of three kinds: light-dark, blue-yellow and red-green. If a camouflaged position appears neither lighter nor darker, neither bluer nor yellower and neither redder nor greener than the surrounding terrain, the observer with his naked eye can not detect it because of its color; it is therefore perfectly colored and matches its background perfectly.

Red-Green Blindness

The two most common forms of colorblindness are called deuteranopia and protanopia. Deuteranopes and protanopes are called colorblinds because they can not make red-green discriminations. To hide a position from such an observer as these it is sufficient to make it neither lighter nor darker, and neither bluer nor yellower than the background. It is not necessary to worry about whether the position is redder or greener than the surrounding terrain. These observers find it hard to pick out ripe strawberries from green or to pick out a rotten apple from a barrel of red apples, since the color differences involved are chiefly red-green differences. Since they can make yellow-blue discriminations quite as well as the normal observers, they are sometimes said to be only partially colorblind.

Red-Green Weakness

There are two other forms of abnormal vision which have to be considered. They are forms of vision intermediate between normal vision and deuteranopia and protanopia, respectively. The form intermediate between normal vision and deuteranopia is known as deuteranomalous vision, that tending toward protanopia as protanomalous vision. There are more

[14] W. W. Scott and C. Vermeulen, *Jour. Clin. Endocrinol.*, 2: 450, 1942. A. L. Dean, H. Q. Woodard and G. H. Twombly, *Jour. Urol.*, 49: 198, 1943.

Judd DB
COLORBLINDNESS AND THE DETECTION OF CAMOUFLAGE.
Science. 1943 Jun 18; 97(2529):544-6.

1900-1972

Pictures:
http://en.wikipedia.org/wiki/Deane_B._Judd
https://de.wikipedia.org/wiki/Tarnung#/media/File:3rd_Battalion,_3rd_Marines_-_Afghanistan.jpg

Material and Methods

- Ishihara-Test as a Data-Projection
- Farnsworth-15-Test
- Desaturated Lanthony-15-Test
- Farnsworth-Munsell-100-Hue-Test
- ToothguideTrainer Software
- ToothguideTrainingBox

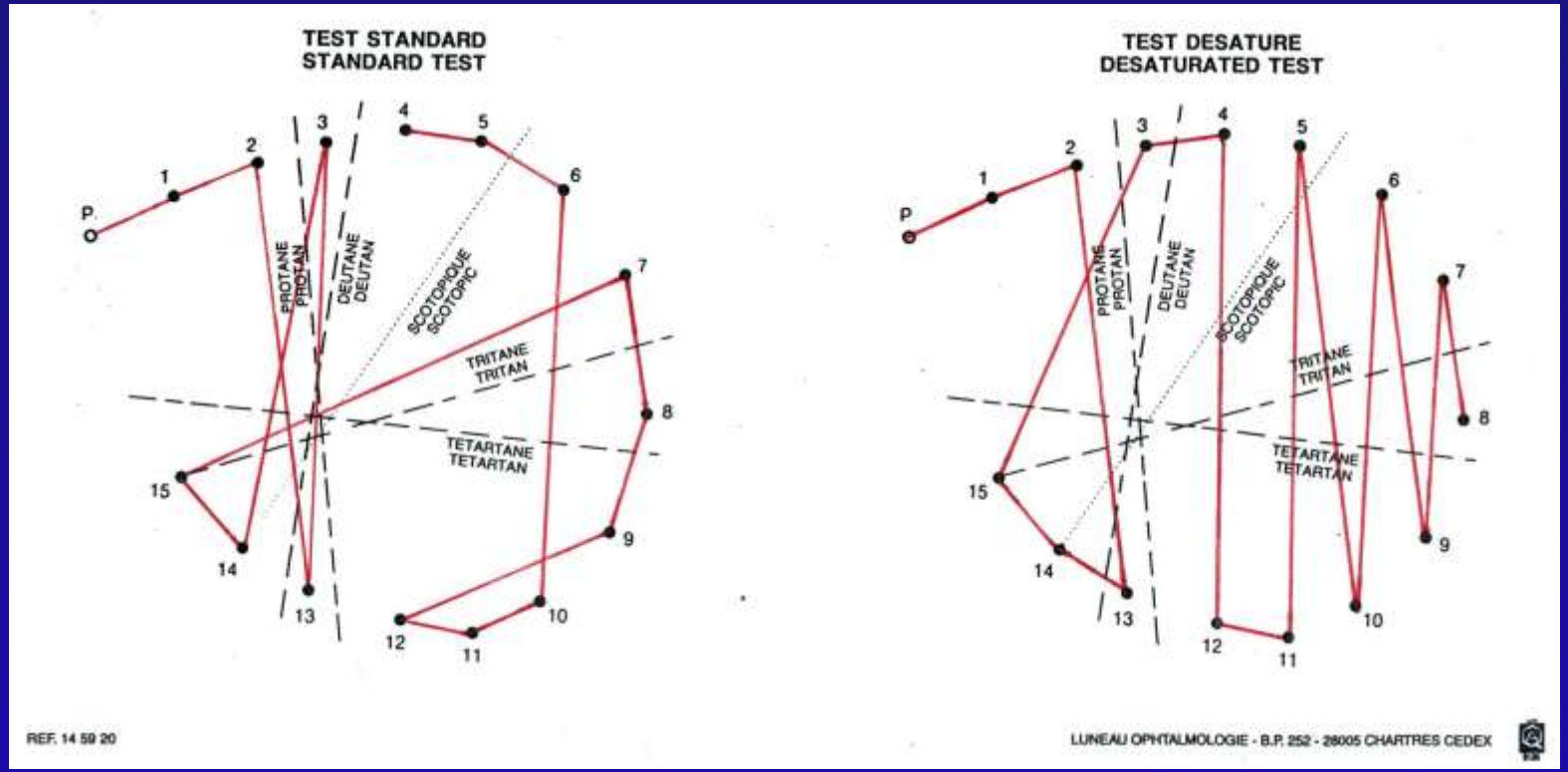
- 5 Subjects (Age from19 to 26 Years, ♂)

Diagnosis of a Deficiency in Color Vision

- Farnsworth-15- and Lanthony-15-Test

Picture: I. Riemer, Leipzig

Results

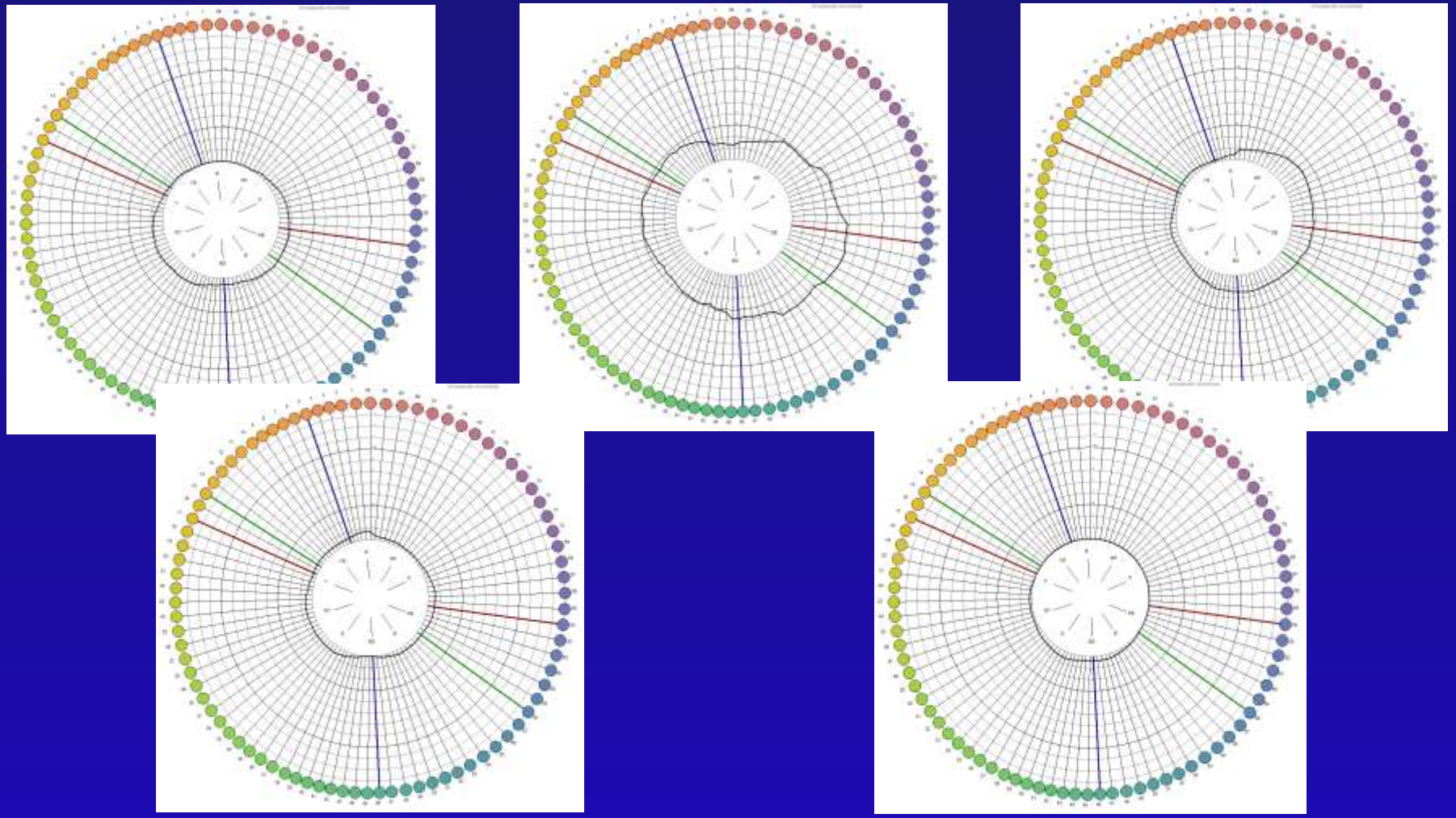


Subject P. S.

Farnsworth-Munsell-100-Hue-Test

Picture: I. Riemer, Leipzig

Results



Results

Subject	Ishihara Errors	Farnsworth-15-Test	Lanthony-15-Test	FM 100 Hue TES	FM 100 Hue Rating	TT Points	TTB Points
B.P.	18	O.K.	Green-Deficiency	48	normal	828	906
P.S.	10	Red-Green-Deficiency	Red-Green-Deficiency	264	low	823	773
J.K.	16	O.K.	Red-Green-Deficiency	92	normal	850	900
S.H.	6	O.K.	O.K.	32	normal	818	856
F.K.	6	O.K.	O.K.	12	super	828	870

Thank you for your kindly attention