

Visual Patterns of Dry Blood as a Health State Indicator

Mikko Vapa and Marko Vapa

Droppi Veripalvelu Oy Finland

firstname@dropper.fi



Study Characteristics

- Purpose of the study was to find out whether dry red blood indicates good health
- Peer-reviewed studies on dry blood method are scarce and therefore the study aimed to provide insight into the general characteristics and performance of dry blood method among different groups
- Dry blood samples were collected during 2007-2009 from 158 Finns
- Self-reported health data and diet information was also collected from the participants
- Participants were 10-72 years old with a mean age of 47 years, mean weight 70 kg, mean height 168 cm and there were 53 male and 105 female participants



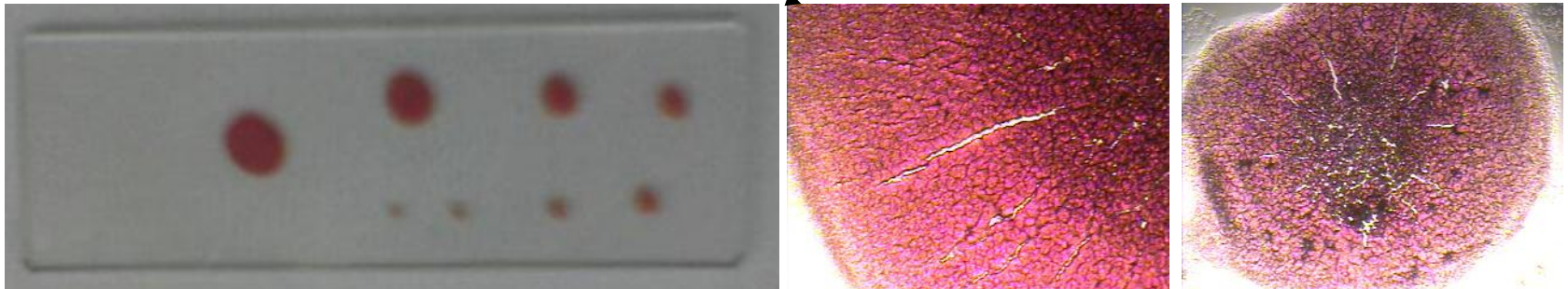
Dry Blood Analysis Method

- Rubik (2002) describes dry blood analysis as follows:
 - Dry blood analysis is a procedure in which a droplet of freshly drawn capillary blood is left to sit for between 20-60 seconds on the fingertip from which it was drawn, and then pressed onto a glass microscope slide in eight sequential layers
 - The glass slide is then left uncovered to clot and dry
 - The resulting fibrin web is examined using a bright-field optical microscope under 10-20x magnification and the patterns noted
 - Normal healthy blood produces a fibrin web that is continuous and without polymerized protein puddles (represented as white objects in this study) and it appears a uniform pinkish-red
- Dry blood analysis is also called the Bolen Test (Bolen, 1952) and Oxidative Stress Test (OST) (Schwerdtle & Arnoul, 1990)



Dry Blood Analysis Method

- After drying for approximately five minutes the dry blood sample is stable to view
- Dry blood sample can be characterized by:
 - Colors: red, pink, black and white
 - Density: colors may vary from light to strong
 - Objects: dots, spots, stripes and pink ridges
 - Position: edge ring, outer ring, inner ring and center



Dry Blood Results

- Visual patterns were divided into 13 features with values 0-3 representing the number of matching blood images for a feature averaged for 19 groups

Group	n	Average	White Edge Ring	Pink Edge Ring	White Outer Ring	Pink Outer Ring	White Inner Ring	White Spots Inner Ring	White Spot Center	White Spots Center	White Dots Center	White Stripes	Black Spots	White Blood Drop	White Blood Drops
All	158	1,16	0,42	0,40	2,15	2,41	1,13	2,52	0,47	0,14	1,85	1,17	2,31	0,08	0,04
Men	53	1,16	0,40	0,55	1,85	2,47	0,98	2,49	0,57	0,08	1,57	1,43	2,64	0,00	0,00
Women	105	1,16	0,44	0,32	2,30	2,38	1,21	2,53	0,42	0,17	1,99	1,04	2,14	0,12	0,06
BMI≥30	18	1,28	0,50	0,78	2,28	3,00	1,06	3,00	0,56	0,00	1,28	1,50	2,67	0,00	0,00
All-Nighters	42	1,25	0,55	0,31	2,29	2,57	1,05	2,64	0,52	0,07	2,19	1,43	2,43	0,07	0,07
Sickness≥4	30	1,23	0,33	0,57	2,27	2,47	1,50	2,40	0,80	0,00	1,70	1,17	2,40	0,30	0,10
Stressed	62	1,22	0,38	0,30	2,27	2,51	1,08	2,52	0,52	0,21	2,06	1,37	2,44	0,10	0,05
Smokers	12	1,21	0,25	0,50	2,17	1,92	1,67	3,00	0,67	0,08	1,50	1,00	3,00	0,00	0,00
Alcohol Drinkers	21	1,21	0,67	0,43	1,71	2,00	1,29	2,57	0,76	0,24	2,14	1,29	2,57	0,00	0,00
Age≥60	35	1,20	0,34	0,83	2,11	2,83	1,06	2,51	0,37	0,11	1,97	1,11	2,40	0,00	0,00
Medicated	66	1,19	0,55	0,40	2,16	2,58	1,22	2,39	0,49	0,12	1,79	1,34	2,28	0,04	0,04
Athletes	27	1,18	0,56	0,59	1,81	2,56	0,74	2,37	0,74	0,11	1,67	1,52	2,63	0,00	0,00
Sleep Disordered	9	1,18	0,89	0,67	2,33	2,56	1,11	2,33	0,44	0,00	1,89	0,56	2,22	0,00	0,33
Coffee Drinkers	118	1,16	0,42	0,41	2,19	2,40	1,15	2,53	0,36	0,12	1,89	1,23	2,32	0,06	0,03
Age≤20	9	1,15	0,67	0,11	2,22	3,00	0,00	2,67	1,56	0,33	1,11	0,89	2,44	0,00	0,00
Health=Great	18	1,13	0,61	0,28	1,89	2,22	0,78	2,22	0,89	0,22	1,56	1,22	2,78	0,00	0,00
BMI≤19	14	1,12	0,50	0,00	2,36	2,57	1,07	2,50	0,57	0,00	1,79	1,07	1,93	0,21	0,00
Sickness=0	27	1,11	0,56	0,48	2,19	2,44	0,63	2,70	0,78	0,26	1,30	0,74	2,33	0,00	0,00
Alkalizers	43	1,06	0,09	0,30	2,16	2,49	1,07	2,56	0,35	0,02	1,77	0,93	2,02	0,07	0,00
Vegetarians	12	1,05	0,50	0,58	1,42	2,25	0,92	2,50	0,42	0,00	1,75	1,00	2,08	0,25	0,00



Dry Blood Results

- Standard deviations for each feature and group is shown below

Group	n	White Edge Ring	Pink Edge Ring	White Outer Ring	Pink Outer Ring	White Inner Ring	White Spots Inner Ring	White Spot Center	White Spots Center	White Dots Center	White Stripes	Black Spots	White Blood Drop	White Blood Drops
All	158	0,98	0,94	1,18	1,14	1,36	1,04	1,01	0,57	1,31	1,38	1,17	0,48	0,34
Men	53	0,97	1,10	1,23	1,07	1,28	1,09	1,12	0,43	1,35	1,42	0,88	0,00	0,00
Women	105	0,99	0,85	1,14	1,17	1,40	1,02	0,96	0,63	1,27	1,34	1,26	0,58	0,41
BMI≥30	18	1,04	1,26	1,07	0,00	1,35	0,00	1,15	0,00	1,36	1,47	0,84	0,00	0,00
Sickness≥4	30	0,80	1,07	1,11	1,14	1,46	1,16	1,24	0,00	1,39	1,37	1,07	0,92	0,55
All-Nighters	42	1,15	0,84	1,15	0,99	1,29	0,98	1,06	0,46	1,23	1,43	1,11	0,46	0,46
Smokers	12	0,87	1,17	1,11	1,44	1,37	0,00	1,23	0,29	1,31	1,35	0,00	0,00	0,00
Stressed	62	0,97	0,82	1,12	1,03	1,41	1,08	1,12	0,74	1,27	1,43	1,09	0,53	0,38
Age≥60	35	0,84	1,25	1,21	0,71	1,33	1,01	0,91	0,53	1,27	1,35	1,09	0,00	0,00
Sleep Disordered	9	1,36	1,12	1,12	1,01	1,45	1,12	1,01	0,00	1,45	1,01	1,09	0,00	1,00
Medicated	66	1,09	0,94	1,16	1,00	1,38	1,17	1,05	0,54	1,32	1,41	1,17	0,37	0,37
Athletes	27	1,09	1,12	1,33	0,93	1,20	1,18	1,23	0,58	1,36	1,40	0,88	0,00	0,00
Alcohol Drinkers	21	1,24	1,08	1,35	1,34	1,45	1,08	1,26	0,70	1,31	1,52	0,98	0,00	0,00
Coffee Drinkers	118	0,99	0,96	1,15	1,15	1,38	1,03	0,88	0,51	1,31	1,39	1,17	0,40	0,28
Ages≤20	9	1,32	0,33	1,20	0,00	0,00	1,00	1,51	1,00	1,27	1,27	1,13	0,00	0,00
Health=Great	18	1,20	0,75	1,32	1,11	1,26	1,26	1,23	0,73	1,42	1,48	0,73	0,00	0,00
BMI≤19	14	1,09	0,00	1,28	1,09	1,38	0,94	1,16	0,00	1,31	1,49	1,33	0,80	0,00
Sickness=0	27	1,12	1,09	1,14	1,12	1,21	0,82	1,28	0,81	1,27	1,20	1,14	0,00	0,00
Alkalizers	43	0,43	0,77	1,27	1,12	1,35	1,01	0,81	0,15	1,38	1,35	1,28	0,46	0,00
Vegetarians	12	1,00	1,08	1,51	1,36	1,38	1,00	1,00	0,00	1,36	1,35	1,38	0,87	0,00



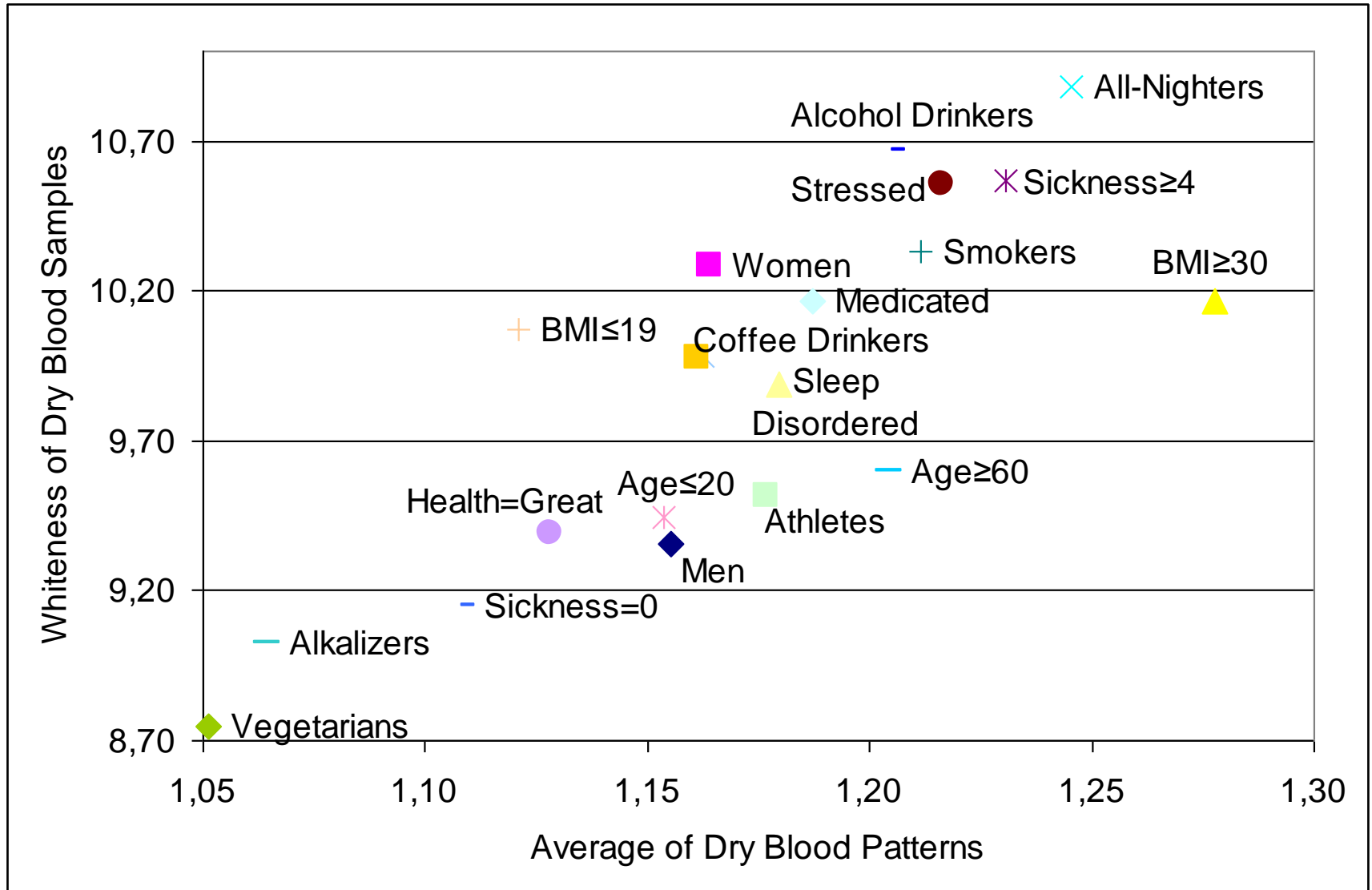
Dry Blood Results

- Visual patterns of dry blood were also summarized to three colors for each group

Group	n	Sum	Whiteness	Blackness	Pinkness
All	158	15,09	9,97	2,31	2,81
Men	53	15,02	9,36	2,64	3,02
Women	105	15,13	10,29	2,14	2,70
BMI≥30	12	16,61	10,17	2,67	3,78
All-Nighters	42	16,19	10,88	2,43	2,88
Sickness≥4	30	16,00	10,57	2,40	3,03
Stressed	21	15,81	10,56	2,44	2,81
Smokers	18	15,75	10,33	3,00	2,42
Alcohol Drinkers	62	15,67	10,67	2,57	2,43
Age≥60	66	15,66	9,60	2,40	3,66
Medicated	118	15,43	10,16	2,28	2,99
Athletes	27	15,30	9,52	2,63	3,15
Sleep Disordered	9	15,33	9,89	2,22	3,22
Coffee Drinkers	9	15,11	9,98	2,32	2,81
Age≤20	35	15,00	9,44	2,44	3,11
Health=Great	18	14,67	9,39	2,78	2,50
BMI≤19	14	14,57	10,07	1,93	2,57
Sickness=0	27	14,41	9,15	2,33	2,93
Alkalizers	43	13,84	9,02	2,02	2,79
Vegetarians	12	13,67	8,75	2,08	2,83



Dry Blood Results



Dry Blood Results

- The results showed that:
 - Obese people have the most pink blood and their blood contains more visual features than others
 - All-Nighters have the most white blood
 - Smokers have the most black blood
 - Visual patterns above average were found in obese people, people who stay up late (all-nighters), sick people, stressed people, smokers, alcohol drinkers, aged people, people with medications, athletes and people suffering from sleeping disorders
 - The most red blood was found among vegetarians (no meat and no fish in the diet), people drinking alkaline water (sea salt water, clay water, green drink or water with pH drops) and people reporting having no diagnosed diseases or symptoms



Conclusions

- The results showed that a good health is indicated by decreasing number of white, black and pink features in the dry blood and therefore health increases when dry blood images approach clean red color
- An average number of white, black and pink features may be an indicator for health problems
- The results support the idea that dry blood method can be used to differentiate between sick and healthy people
- Two dietary groups had the cleanest blood supporting the idea that clean blood may be associated to dietary choices



Future Research

- Future research is needed to find out what substances make blood white, black or pink
- Randomized blinded trials are needed to evaluate the diagnostics capabilities of the dry blood method
- Controlled intervention trials are needed to evaluate whether dry blood can be affected via nutrition or physical activities
- Machine vision technologies should be used to exactly measure the visual features of dry blood



References

- Rubik B. Sympathetic Resonance Technology™: Scientific Foundation and Summary of Biologic and Clinical Studies, The Journal of Alternative and Complementary Medicine. December 2002, 8(6):823-856, www.clarus.com/articles/file_sOXaB3.pdf
- Bolen H. L. The blood pattern in presymptomatic malignancy of the gastrointestinal tract. The American journal of digestive diseases. May 1952, 19(5):127-30, www.ncbi.nlm.nih.gov/pubmed/14923639
- Schwerdtle C. & Arnoul F., Introduction into Darkfield Diagnostics, Hoya, Germany, Semmelweiss-Verlag, 1990

