

Supporting Information for

Fluid Mechanics of Thin Blood Films to Detect Anemia and Sickle Cell Disease

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Tables S1 to S4 containing results of statistics calculations for anemia and sickle-cell disease.

Table S1. One-way ANOVA of the two independent conditions, namely, Severe Anemia and Others. The p-value corresponding to the F-statistic of one-way ANOVA is lower than 0.05, suggesting that the two conditions are significantly different.

Anova: Single Factor	Severe Anemia vs Others						
SUMMARY							
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>			
Severe Anemia	14	37.65	2.69	0.05			
Others	502	1854.81	3.69	0.45			
ANOVA							
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>	
Between Groups	13.75	1	13.75	31.21	3.7E-08	3.86	
Within Groups	226.55	514	0.44				
Total	240.31	515					

Table S2. One-way ANOVA of the two independent conditions, namely, Anemia and Healthy. The p-value corresponding to the F-statistic of one-way ANOVA is lower than 0.05, suggesting that the two conditions are significantly different.

Anova: Single Factor	Anemia vs Healthy						
SUMMARY							
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>			
Anemia	224	706.77	3.16	0.16			
Healthy	292	1185.70	4.06	0.34			
ANOVA							
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>	
Between Groups	103.91	1	103.91	391.58	3.27E-65	3.86	
Within Groups	136.40	514	0.26				
Total	240.31	515					

Table S3. One-way ANOVA of the 4 independent conditions, namely, Healthy, SCT, SCA and SCA+HU. The p-value corresponding to the F-statistic of one-way ANOVA is lower than 0.05, suggesting that the one or more conditions are significantly different.

SUMMARY Sickle Cell Disease						
Groups	Count	Sum	Average	Variance		
Healthy	104	1054.156871	10.13612376	85.83163497		
SCT	138	6859.916764	49.70954177	2202.326248		
SCA	63	9173.379636	145.6092006	3875.643576		
SCA+HU	89	6791.092734	76.30441274	1719.941374		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	758437.2542	3	252812.4181	140.4105209	1.07491E-61	2.627789
Within Groups	702204.097	390	1800.523326			
Total	1460641.351	393				

Table S4. The post-hoc Tukey HSD Test confirms that all relevant pairs of conditions are significantly different. Calculations performed using the online statistics toolbox: <https://www.statskingdom.com/180Anova1way.html>

Tukey HSD / Tukey Kramer							
Pair	Difference	SE	Q	Lower CI	Upper CI	Critical Mean	p-value
Healthy vs SCT	39.57341801	3.8961	10.157	25.3572	53.7891	14.216	1.45E-10
Healthy vs SCA	135.4730768	4.7902	28.2802	117.9897	152.9461	17.4782	1.24E-10
Healthy vs SCA+HU	66.16828899	4.3325	15.2722	50.3575	81.9746	15.8086	1.24E-10
SCT vs SCA	95.8996588	4.5622	21.0203	79.2486	112.5409	16.6461	1.24E-10
SCT vs SCA+HU	26.59487098	4.0789	6.5196	11.7094	41.4764	14.8835	0.00003231
SCA vs SCA+HU	69.30478783	4.94	14.0288	51.2766	87.3271	18.0253	1.24E-10

The Kruskal-Wallis H test indicated that there is a significant difference in the *dependent variable* between the different *groups*, $\chi^2(3) = 272.893$, $p < .001$, with a mean rank score of 61.63 for Healthy, 193.822 for SCT, 337.75 for SCA, 262.68 for SCA+HU.

The Post-Hoc Dunn's test using a Bonferroni corrected alpha of 0.0083 indicated that the mean ranks of the following pairs are significantly different: Healthy vs SCT, Healthy vs SCA, Healthy vs SCA+HU, SCT vs SCA, SCT vs SCA+HU, SCA vs SCA+HU.