

Appendix 1:

Inclusion criteria:

1. The Regular workplace is an urban environment.
2. I have not entered the tourist area for sightseeing recently (within 6 months).
3. Naked eye vision or corrected vision is above 1.0, no color blindness, color weakness and other conditions.

Exclusion criteria:

1. Visitors with mental illness requiring long-term medication and regular follow-up.
2. Tourists with cognitive dysfunction-related disorders.
3. Received anesthesia surgery recently (within 6 months).
4. Tourists dependent on drugs, alcohol, cocaine, marijuana, or amphetamines.

The demographic characteristics of tourists were subjected to a descriptive statistical analysis, as shown in Table 2.

Experimental researchers are in the experiment

Visitors were advised to avoid excessive drinking the day before the experiment and avoid high intensity.

Dress guidance during nursery training and experiments.

Appendix 2

In the presence of the primary symptoms, four or more of the secondary symptoms were required to diagnose CFS.

CFS is diagnosed by the presence of 4 or more of the secondary symptoms.

1. Primary symptom: the presence of sleep fatigue that is difficult to eliminate if other organic diseases are excluded.

Duration: lasting for 6 months or more.

2. Secondary symptoms: 1) Significant short-term memory loss or difficulty concentrating.

2) pain in the throat, similar to cold symptoms; 3) swelling or pain in the lymph nodes of the body; 4) localized fatigue without excessive exercise or muscle strain.

4) persistent local muscle soreness without excessive exercise or muscle strain, with or without affecting daily work life; 5) redness, swelling and pain at unrelated

(5) redness, swelling, and pain at the nodes; (6) the presence of unprovoked headache, which can be relieved by itself after rest; (7) persistent sleep at night

(7) poor recovery of energy after sleep; (8) physical or mental discomfort lasting 24 hours or more after physical or mental work.

Also (9) lack of sleep or reduced quality of sleep (10) reduced cognitive function and/or intolerance of standing position. etc. may also be

were considered as secondary symptoms.

In addition to meeting the diagnosis of CFS, the requirements of this study must also be met.

1 20-50 years of age Daily moderate-to-vigorous work in an urban environment, residing in an urban area

Male or female

2

CFS diagnosis certified by a professional neurologist, psychiatrist or psychologist.

3 BMI index: between 19 and 25

4

Recent (6 months and above) mental lethargy, depression, insomnia and forgetfulness, decreased sleep quality, decreased Decreased attention span, etc.

5

With or without mild swelling and pain in the neck and axillary lymph nodes, but no significant abnormalities on physical examination and routine laboratory tests.

The physical examination and routine laboratory tests do not reveal any significant abnormalities.

2) Exclusion criteria.

1

Pregnant, pregnant or lactating women

2

Exclude hypothyroidism, diabetes mellitus and other related cardiovascular, digestive, endocrine and neurological diseases. Patients who need to take medication for a long time.

3

Patients who have recently (within 6 months) undergone anesthetic surgery.

4

No history of psychiatric disorders (post-traumatic stress disorder; bipolar disorder; any subtype of psychotic disorder; any subtype of psychotic disorder).

disorder; any subtype of delusional disorder; any subtype of dementia; anorexia nervosa; or bulimia nervosa; anxiety disorders.

bulimia nervosa; anxiety disorders; depression, etc.), and no history of psychiatric disorders in the immediate family.

5

Alcohol or other substance abuse for 2 years prior to diagnosis of chronic fatigue syndrome and at any time thereafter.

Substance abuse.

6

Infection with EBV, coxsackievirus, hepatitis virus, hepatitis B virus, or other drug abuse within 2 years prior to diagnosis of chronic fatigue syndrome and any time thereafter.

Coxsackie virus, hepatitis virus, HIV, HPV, etc. within 2 years and any time after the diagnosis of chronic fatigue syndrome.

7

Infection with parasitic diseases, etc. within 2 years prior to and any time after the diagnosis of chronic fatigue syndrome.

8

Infection with novel coronavirus, pneumonia, avian influenza, etc. within 2 years prior to and any time after the diagnosis of chronic fatigue syndrome.

Pneumonia, avian influenza and other infectious diseases.

9

Patients with less than secondary school education level

A thorough physical examination has been performed prior to subject enrollment and is required to provide within 3 months prior to the start of the trial

Physical examination report including (blood biochemistry, blood routine) and reduction of non-essential out-of-town travel residence. Avoid

Avoid bad habits such as staying up late, overeating, alcohol and drug abuse.

3) Withdrawal criteria

① Subjects cannot adapt to the environmental changes, have a significant decrease in sleep quality, poor appetite, and are eager to improve by withdrawing from the experiment.

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② Subjects with serious acute pathology (respiratory system infection, digestive system inflammation) in the course of the experiment need

medication, or trauma requiring hospitalization, etc.

(③ Subjects had an accidental injury (car accident, fracture, cold, etc.), or a sudden important family event (death of a relative, marriage, divorce, etc.)

1. The Regular workplace is an urban environment.

Appendix 3

Table S1 Waterfall environmental intervention without time period out of serum differential metabolites (day 0 vs. day 3)

Name	VIP	Fold change	P value
L-Ascorbic acid	1.749688639	3.757247275	1.47825E-06
Glycerophosphocholine	3.576435214	1.833180498	1.84961E-05
D-Proline	1.701126648	1.635516268	3.70499E-05
Ornithine	1.460825829	1.562503015	0.000316483
Val-Ser	2.922387612	0.474781492	0.000967026
L-Pyroglutamic acid	2.290903109	1.667417385	0.0017219
L-Lysine	2.025500637	2.599338117	0.002681574
alpha-Linolenic acid	2.083028662	1.382391238	0.005368979
Betaine	2.381674296	1.182064834	0.008900451
Sarcosine	1.929126775	1.601244539	0.009053272
Imidazoleacetic acid	1.546243642	1.165388307	0.009208013
Choline	3.584788067	1.191994469	0.012319974
Eicosapentaenoic acid	1.309258668	2.107749321	0.013811266
Hypoxanthine	4.207576481	2.168396526	0.015308255
Taurine	1.059473259	0.652216715	0.022401585
1-Palmitoyl-sn-glycero-3-phosphocholine	14.57953293	1.190315404	0.022959218
L-Pyroglutamic acid	7.167804138	1.990140758	0.000100609
L-Cysteinesulfinic acid	1.073214663	1.20426907	0.005539491
Hypoxanthine	1.139014423	1.846467069	0.006345731
Taurine	1.712505107	0.584633099	0.007106044
Glyceric acid	1.10604714	1.429224562	0.011774181
Xanthine	1.897599503	1.43873385	0.038297941
Citrate	6.626677084	0.532716675	0.042072156
L-Lysine	1.751705502	1.312787659	0.043318066
Citramalic acid	1.690336408	1.72178441	0.044626331
Linoleic acid	5.296924558	1.357038041	0.045739806
L-Phenylalanine	2.141943154	1.216001992	0.048674149
L-Histidine	2.200263058	1.202201376	0.053785157
L-Pipecolic acid	1.791980336	1.135455009	0.063273996
Creatinine	4.548611321	1.729527172	0.063650339
1-Oleoyl-sn-glycero-3-phosphocholine	3.01434481	0.864768744	0.06817662
EDTA	2.431106629	0.660124429	0.071134598
DL-Indole-3-lactic acid	1.586797094	0.802751994	0.07824297
Hippuric acid	1.462270744	3.914723958	0.060578676
L-Malic acid	1.221469404	1.505481168	0.06530941
L-Histidine	1.691981377	1.975646644	0.076806111
L-Threonate	1.110118232	1.265652805	0.079433296
D-Glucuronate	1.088531366	1.221955013	0.081851471

Note: VIP is the variable weight value Fold change is the difference multiple, yellow background is the upregulation difference, and blue is the downregulation difference, the same below.

Table S2 Waterfall environmental intervention without time period out of serum differential metabolites (day 0 vs. day 7)

Name	VIP	Fold change	P value
Val-Ser	3.996286549	0.254442827	2.85092E-06
L-Ascorbic acid	1.900943652	4.453823335	2.43817E-05
D-Proline	1.428322443	1.462687937	0.001254507
L-Pyroglutamic acid	2.149690657	1.571941352	0.001267235
L-Lysine	1.763759766	2.015373842	0.002243812
Glycerophosphocholine	2.142732477	1.369207093	0.006238053
L-Pipecolic acid	1.600367442	1.181846604	0.009240571
Sarcosine	1.786489535	1.48391883	0.013315921
trans-2-Hydroxycinnamic acid	1.026570607	1.392640174	0.013532596
Imidazoleacetic acid	1.45246483	1.140047862	0.013704703
DL-2,4-Diaminobutyric acid	1.489933632	1.297537316	0.014954471
1-Palmitoyl-sn-glycero-3-phosphocholine	13.88426449	1.167680569	0.01791303
L-Tyrosine	1.368957869	1.278483745	0.032417492
Tyramine	1.340769159	1.310268412	0.037642356
Ornithine	1.076612655	1.374749992	0.044008649
1-Stearoyl-sn-glycerol 3-phosphocholine	1.692083972	1.197412638	0.044632426
L-Pyroglutamic acid	6.562656846	1.882114888	0.000149735
Sphingosine-1-phosphate	1.14616173	2.461684135	0.004958508
L-Threonate	1.862095532	1.726142543	0.006794002
Myristic acid	1.148858946	1.375519774	0.011563791
Taurine	1.360630458	0.626637053	0.025981868
Citramalic acid	2.078685535	2.034240132	0.035893223
Linoleic acid	4.533349465	1.303102729	0.037327781
L-Phenylalanine	1.785767226	1.177883273	0.038565264
Betaine	4.794259534	1.123538502	0.051700011
1-Stearoyl-2-hydroxy-sn-glycero-3-phosphocholine	1.995034903	1.236830041	0.057930908
L-Histidine	1.917047061	1.190343144	0.073179795
1-Myristoyl-sn-glycero-3-phosphocholine	1.590860163	1.260756746	0.079395464
Choline	2.819014071	1.161425912	0.081033281
Hypoxanthine	2.979211612	1.553241866	0.090376175
alpha-Linolenic acid	1.592180652	1.210867882	0.094232883
Dihydrothymine	1.06318009	0.562994373	0.05235444
alpha-Linolenic acid	1.907158665	1.354094953	0.05331124
cis-9-Palmitoleic acid	1.689056976	1.556403692	0.055705028
L-Malic acid	1.116111457	1.363942656	0.059996398
EDTA	6.954267601	0.360202642	0.074311805
Citrate	5.027840076	0.69414383	0.077858108
L-Lysine	1.677387096	1.22626004	0.078169042
Uric acid	1.571479619	0.821642449	0.08479962

Table S3 Waterfall environmental intervention without time period out of serum differential metabolites (day 3 vs. day 7)

Name	VIP	Fold change	P value
L-Ascorbic acid	1.07727158	1.398233452	0.003454783
Val-Ser	3.42686793	0.53591564	0.00668246
Chlorpromazine	1.730424826	0.831216628	0.011520773
Glycerophosphocholine	5.27219663	0.746902498	0.013726953
Phosphorylcholine	1.08064895	1.218588011	0.017155457
Urocanic acid	1.953842113	1.524383687	0.017919473
D-Proline	1.25594993	0.609494016	0.022680521
Phe-Tyr	4.704838907	0.670167802	0.043746859
1-Oleoyl-sn-glycero-3-phosphocholine	12.37272528	1.214965597	0.04544287
Eicosapentaenoic acid	2.026470287	0.576290399	0.049085297
Glyceric acid	6.723166164	1.43104333	0.013766716
L-Isoleucine	4.853735592	1.351130959	0.022100339
L-Histidine	3.082299214	0.417375373	0.027454762
Embelin	1.407007531	1.411339981	0.029172403
cis-Aconitate	4.1316406	0.792818322	0.046189338
L-Proline	2.958241703	0.760718853	0.068354648
L-Leucine	4.96444089	1.326967997	0.070395273
Sarcosine	1.224370711	1.214901748	0.090168914
Citrate	7.673862736	1.545277749	0.053781966
Bilirubin	1.232775171	0.663733015	0.07604346
Palmitic acid	1.581496282	0.814959637	0.086667564
D-Glucuronate	1.086643933	0.869157594	0.095426076
Dihydrothymine	2.47926027	0.589382765	0.098690304