



HPH CONFERENCE VIENNA 2023

THE ROLE OF HEALTH PROMOTION IN WELL-BEING-ORIENTED
HEALTHCARE



New integrated stress management strategies for medically unexplained symptoms reduction through lifestyle and circadianity

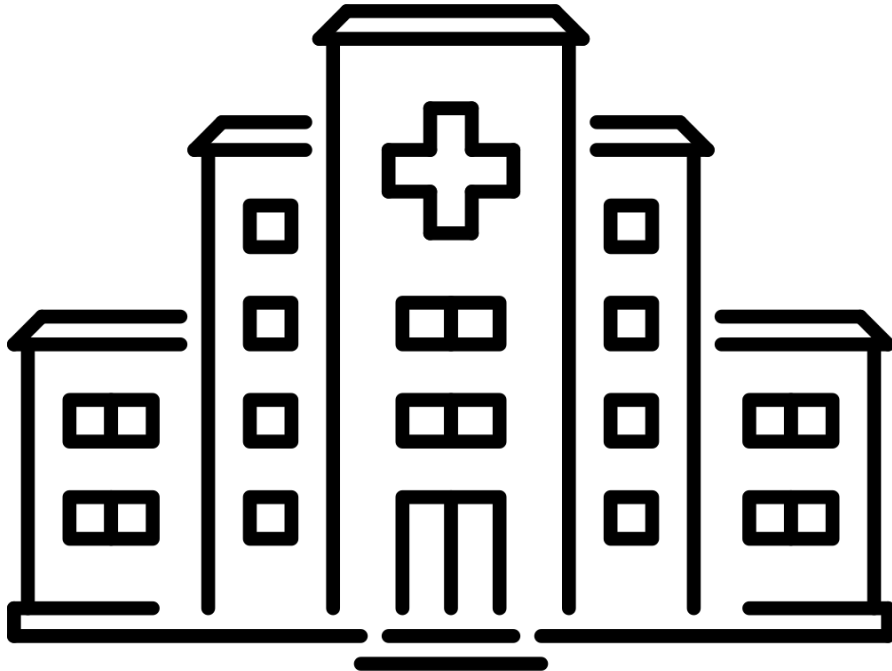
Vienna 21 september 2023

Dr. Pietro Del Giudice, MD PhD

Working Group: Aguzzoli Cristina, Annunziata Antonietta, Lardieri Gerardina, Portolan Patrizia, Ronchese Federico, Russian Stefano, Caputo Tiziana, Cavallari Stefania, Cortese Vito, Risi Marina, Del Zotto Stefania, Lugano Manuela, Andreatti Maurizio, Bestiaco Nicoletta, Dudine Luisa, Vella Filomena, Mottica Michela, Celebre Cinzia.

Regional Coordination Centre
HPH Friuli Venezia Giulia Network- ITALY

Who get stressed?



Stress, this unknown?

- persistent hyperactivation of the stress system determines the loss of circadian rhythms
- presence of MUS is associated with low-grade persistent chronic inflammation
- low-grade persistent chronic inflammation is the basis of most chronic diseases

MEDICALLY UNEXPLAINED SYMPTOMS

MUS

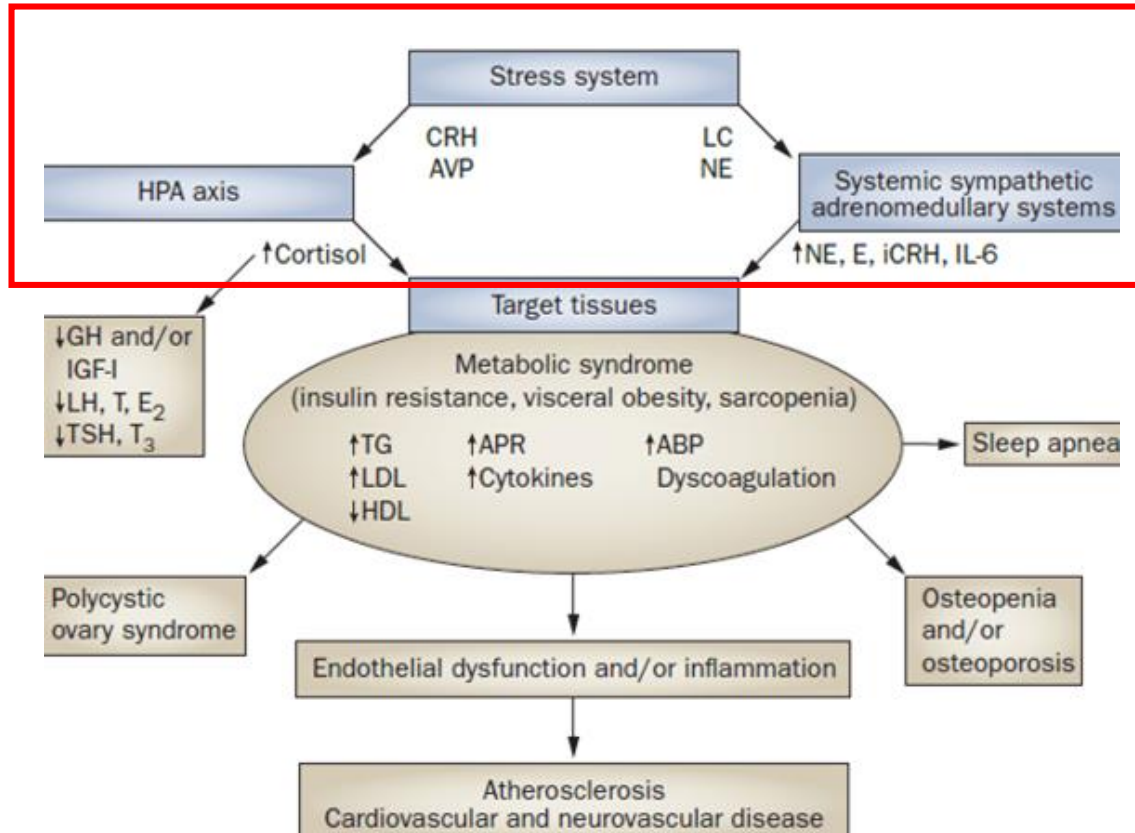
MUS® - Medically Unexplained Symptoms Self-Evaluation

Do you suffer from chronic and persistent fatigue?
Have you been suffering from mood disorders for long?
Do you suffer from persistent insomnia or awakenings from sleep?
Do you suffer from persistent drowsiness during the day?
Have you been experiencing anxiety?
Have you been experiencing apathy?
Have you been suffering from panic attacks?
Have you been experiencing abnormal heart beats (arrhythmia or tachycardia) at rest?
Have you noticed changes in your appetite (excessive hunger or loss of appetite)?
Do you suffer from night hunger pangs (night binge eating disorder)?
Have you been suffering from heartburn, stomach fullness, bloating or nausea?
Do you suffer from irritable bowel syndrome?
Have you periodically been suffering from constipation or altered bowel movement?
Do you usually have cold hands and feet?
Do you suffer from altered perspiration during sleep?
Do you often wake up in a bad mood?
Have you been experiencing feelings of unjustified guilt?
Do you have difficulties in experiencing pleasure or relief, as a result of positive events?
Have you recently experienced significant weight loss?

All rights reserved BioTekna - Italy. MUS® - Medically Unexplained Symptoms Self-Evaluation n.2012001626, 2012.

<https://mus.global/>

Stress as a System. Can life be stress-free?



- The body must manage the chaos that is life (heat, thirst, pain, external stimuli, thoughts) by expending energy
- Activation of the stress system as a stereotyped response system to any energy demand
- The stress system activates the SNS (short term response) and the HPA axis (long term response)

Chrousos, G. P. Nat. Rev. Endocrinol. 5, 374–381 (2009);
published online 2 June 2009; doi:10.1038/nrendo.2009.106



Designing the activity – new strategies for stress management

june - sept 2020

MUS Survey 600 health workers

+

Project prototype **«take care of
those who took care of us»**

85 health workers

sept. 2021 – may 2023

Pilot study **«take care of
those who take care of us»**

300 health workers

NOW sept. 2023

From research project to a
stable offer for all HPH
regional members health
workers

The project: Take care of those who take care of us

- Select a population of operators under stress with at least 3 MUS
- Provide an instrumental non-invasive evaluation of the stress system
- Minimal advice on lifestyle changes to recover circadianity
- Training on resonance breathing biofeedback as a convenient stress management technique to regain focus, energy and activate the anti-inflammatory cholinergic pathway
- Monitor the situation over time (3 visits per participant) and provide any indications to encourage better compliance

Project toolbox

- Protocol for the visit
- Set of advices for recovering optimal psycho-physical health
- Diary for self-assessment of compliance to the set of advices

Progetto regionale
"Aver cura di chi ci cura"
Soggetto Promotore:

ARCS
Azienda Regionale
di Coordinamento
per la Salute

International Network of
Health Promoting Hospitals
& Health Services

REGIONE AUTONOMA
FRIULI VENEZIA GIULIA

Protocollo Operativo "Aver cura di chi ci cura" 2021

**Protocollo Sequenza
Prima Visita**

Accoglienza e acquisizione a seguito della firma del consenso informato e del documento privacy

Progetto regionale
"Aver cura di chi ci cura"
Soggetto Promotore:

ARCS
Azienda Regionale
di Coordinamento
per la Salute

International Network of
Health Promoting Hospitals
& Health Services

REGIONE AUTONOMA
FRIULI VENEZIA GIULIA

Consigli per il recupero dell'ottimale stato di salute psico-fisica

Proposta di azioni pratiche che riguardano il recupero dei ritmi neuroendocrini fisiologici

- Svegliarsi presto, seguendo il ritmo naturale della luce (comunque entro le 8 del mattino);
- Bagnarsi il viso ed i polsi con acqua fredda per qualche minuto;
- Effettuare il training respiratorio per 5 minuti;
- Attività fisica preferibilmente al mattino, conservare l'aspetto diurno dell'attività fisica
- Effettuare un'abbondante colazione, preferendo alimenti ricchi in fibre e minerali;
- Concentrarsi su pensieri positivi;
- Nel tempo libero a disposizione leggere un libro, ascoltare musica, parlare con persone piacevoli evitando l'iperconnessione a notiziari e materiali video riguardanti l'emergenza (in generale usare poco i dispositivi retroilluminati es. telefoni, tablet, pc) nella fase serale;
- Cenare con vegetali e alimenti funzionali utili per non sollecitare troppo il sistema digerente, in una finestra oraria in cui non deve lavorare troppo;
- Fare un bagno caldo, utile per dare un segnale ulteriore di relax e di preparazione al sonno
- Bere almeno una quota di acqua corrispondente al 3 % del proprio peso corporeo

Proposta di training respiratorio

La respirazione che è autonoma e migliore. Respirare secondo il esercizio consigliato contare 3 nella fase di iniezione. Ciò induce sull'aria. Mantenere una posizione che contrarre il diaframma.

Proposta di azioni pratiche

- Attenersi il più possibile al ritmo di vita.
- Obiettivo per tre giorni: Effettuare in ogni pasto un'attività fisica in fiore e minerali.
- Idratarsi integrare il liquido.

A cura del Gruppo regionale
Friuli Venezia Giulia

1. Mayou, R. Medicality una
2. Hatcher, S. Arroll, B. Aspetti
4. Hartman, O. The NHG guideline
3. Ivajaro, G. Goldberg, G. B
9. Tsigos, C. Stress and inflammation
Society for Clinical Investigation
10. Chrousos, G.P. Stress and

Progetto regionale
"Aver cura di chi ci cura"
Soggetto Promotore:

ARCS
Azienda Regionale
di Coordinamento
per la Salute

International Network of
Health Promoting Hospitals
& Health Services

REGIONE AUTONOMA
FRIULI VENEZIA GIULIA

AUTO MONITORAGGIO "AVER CURA DI CHI CI CURA" 2021-2022

Legenda:
adesione ai consigli Totale ➡ B (oltre metà dei consigli)
adesione ai consigli Parziale ➡ P (meno di metà dei consigli)
adesione ai consigli Nulla ➡ N (nessuno dei consigli)

Riportare per ogni giornata la lettera che corrisponde alla messa in pratica dei consigli per il Recupero dei ritmi circadiani.

Dicembre 2021	Giorno	Adesione (B/P/N)	Dicembre 2021	Giorno	Adesione (B/P/N)	Dicembre 2021	Giorno	Adesione (B/P/N)
	1 M			12 D			23 G	
	2 G			13 L			24 V	
	3 V			14 M			25 S	
	4 S			15 M			26 D	
	5 D			16 G			27 L	
	6 L			17 V			28 M	
	7 M			18 S			29 M	
	8 M			19 D			30 G	
	9 G			20 L			31 V	
	10 V			21 M				
	11 S			22 M				

Visit plan

PRE-OPERATIONAL PHASE

- Collection of documents (consents, MUS questionnaires)

OPERATIONAL PHASE

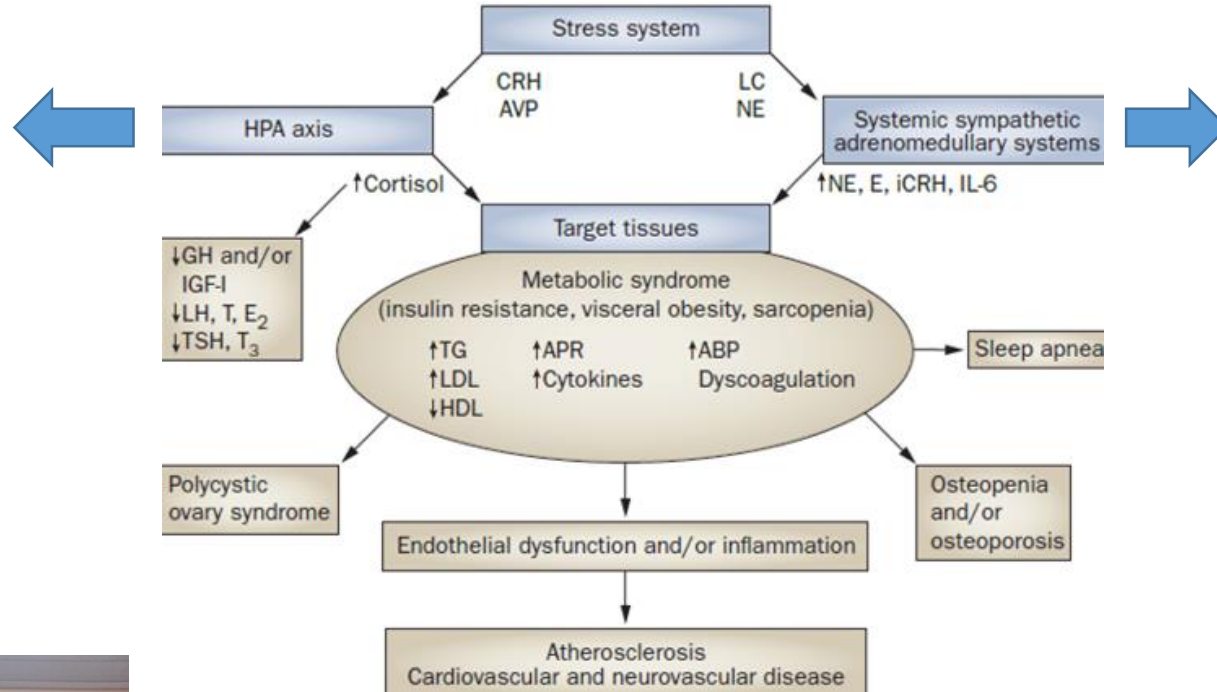
- Execution of tests
- Resonance breathing biofeedback training
- Commentary on the results
- Minimal advice on lifestyle changes to recover circadianity
- Discussion of doubts to encourage better compliance

Objective measures of the stress system

Body composition clinical analysis

BIA-ACC® device (BioTekna, Italy).

- TBW, Total Body Water
 - ECW, ExtraCellular Water
 - ICW, IntraCellular Water
 - FFM, Fat-Free Mass
 - FM, Fat Mass
 - ECMatrix, ExtraCellular Matrix
 - BMR, Basal Metabolic Rate
- HPA Axis Index



Analysis, monitoring and biofeedback of the autonomic nervous system and the heart rate variability

PPG Stress Flow® device (BioTekna, Italy)

- SDNN
- Mean HR
- VLF power
- LF power
- HF power
- Scatter – Heart rate
- Bilateral flow
- ANS Balance



Chrousos GP, Papadopoulou-Marketou N, Bacopoulou F, Lucafò M, Gallotta A, **Boschiero D**.

Photoplethysmography (PPG)-determined heart rate variability (HRV) and extracellular water (ECW) in the evaluation of chronic stress and inflammation. Hormones (Athens). 2022



Resonance breathing biofeedback training

- Breathing at a frequency of six breaths per minute intervenes on the regulation of the autonomic nervous system and improves well-being
- Exercise for five minutes at least three times a day (morning, afternoon and evening)

recommended exercise

Count 5 in the inhale phase, hold your breath for a count of 2, count 5 in the exhale phase. This increase the activity of the vagus nerve, our natural anti-inflammatory system. Maintain an upright posture, counteracting the defensive posture which tends to close the rib cage and contract the diaphragm.

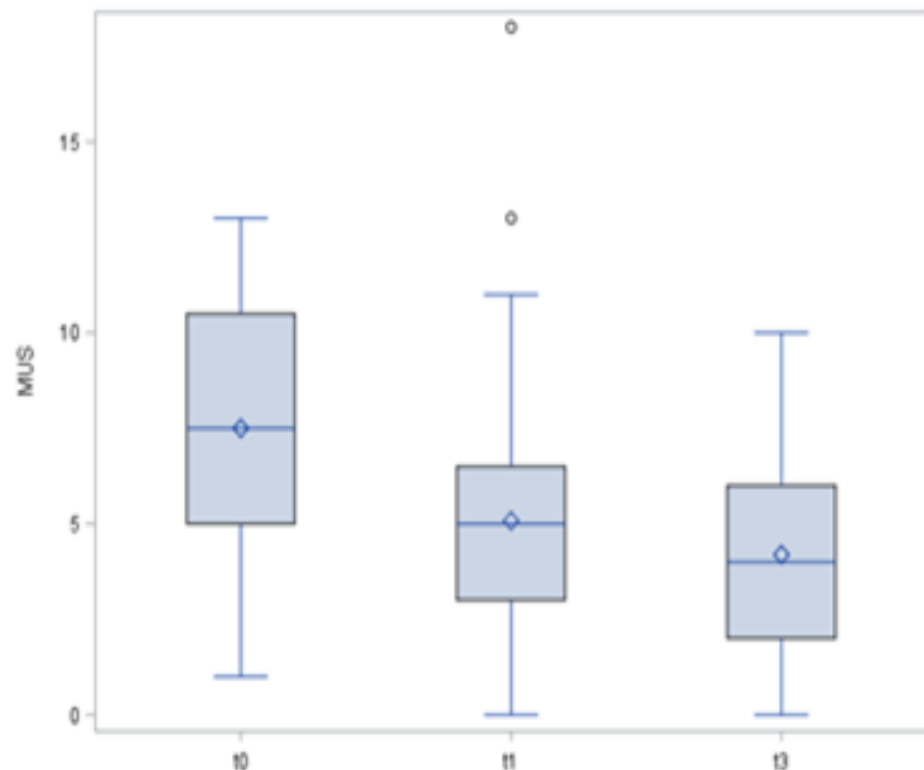
Minimal advice on lifestyle changes to recover circadianity

- Behaviors upon awakening – «lighting-up phase»
- Behavior in the evening – «switch off phase»
- Nutrition with functional foods and according to a circadian rhythm
- Correct hydration
- Free «anti-stress» time management
- Resonance breathing biofeedback
- Physical activity according to a circadian rhythm

variations and adaptations in the case of night shift work

Project prototype 2020

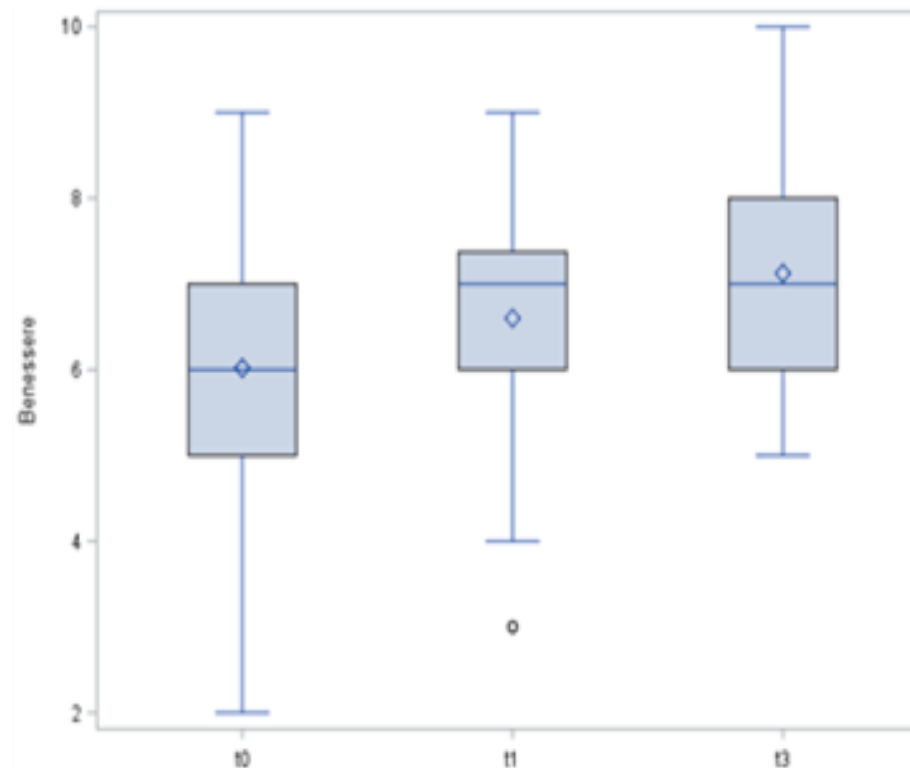
MUS



Wilcoxon Two-Sample Test. $p < .001$

MUS decreases from T0 to T1

SELF RELATED HEALTH



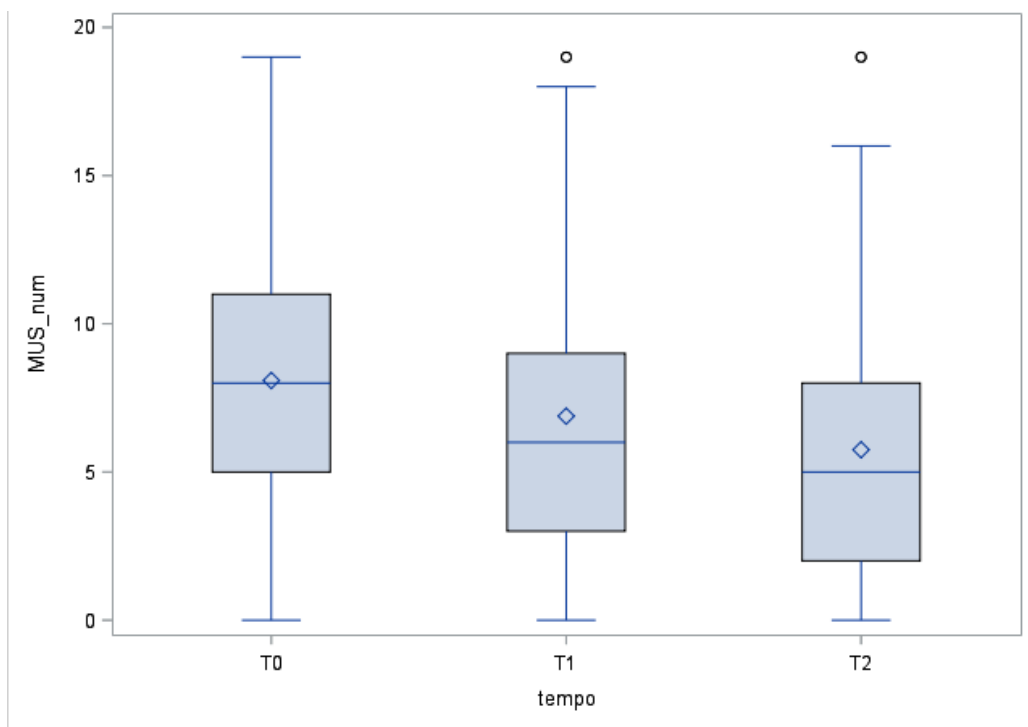
Wilcoxon Two-Sample Test. $p < .001$

SELF RATED HEALTH increases from T0 to T2

Pilot Study 2021-2023

- Subjective measures (preliminary analysis)

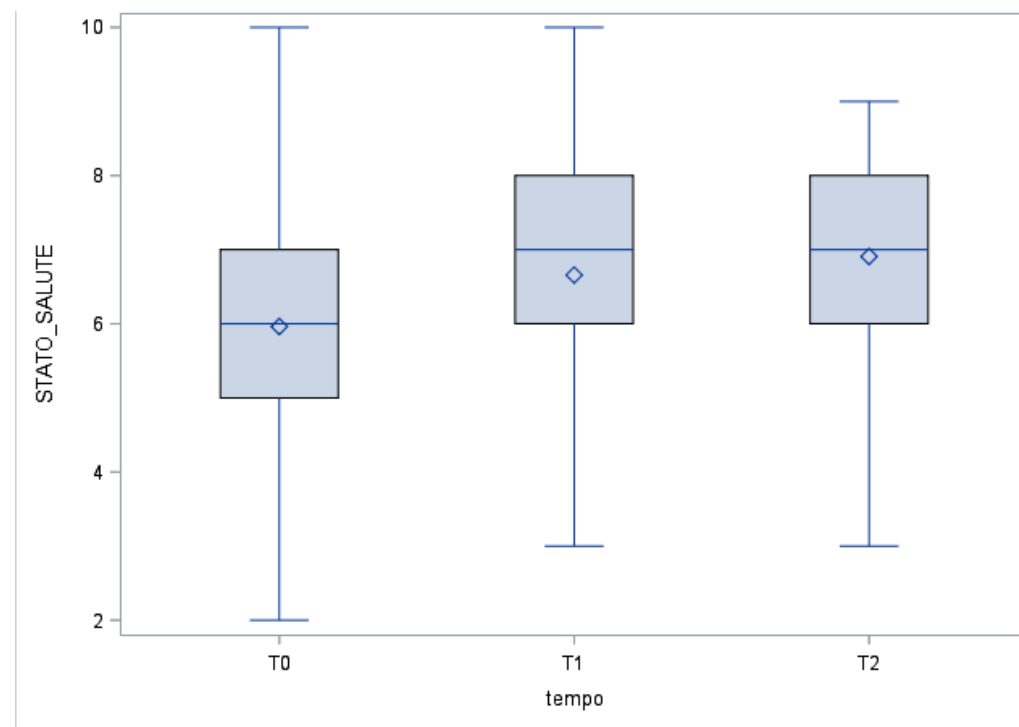
MUS



Wilcoxon Two-Sample Test. $p < .001$

MUS decreases from T0 to T2

SELF RELATED HEALTH



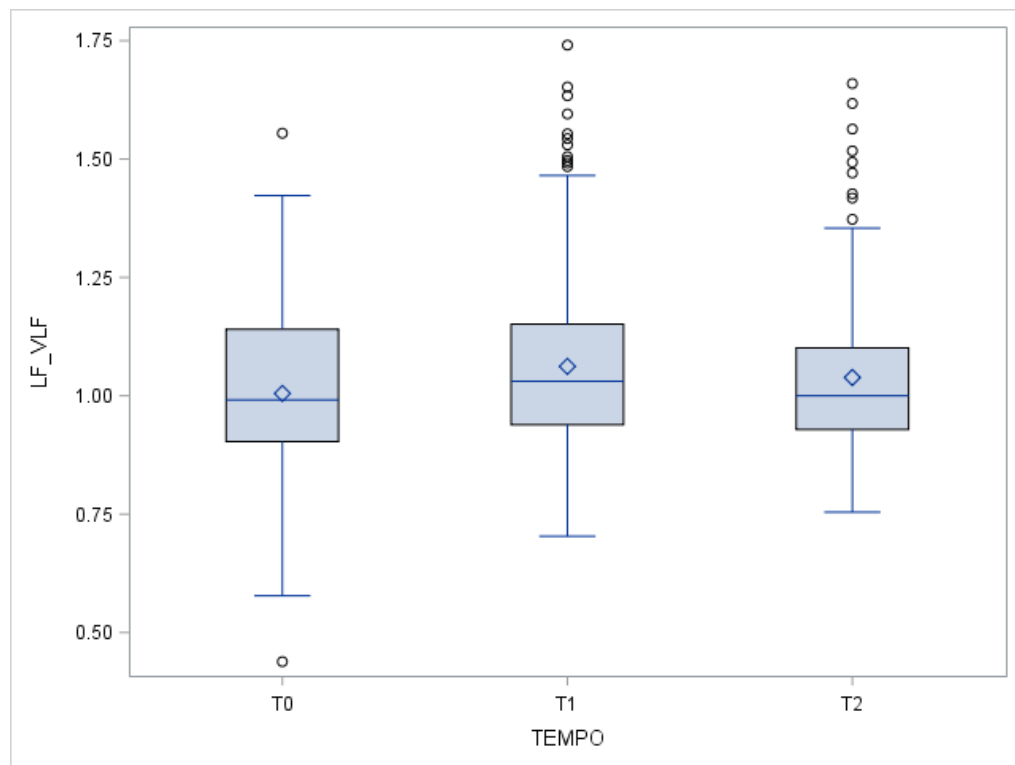
Wilcoxon Two-Sample Test. $p < .001$

SELF RATED HEALTH increases from T0 to T2

Pilot Study 2021-2023

- Objective measures (preliminary analysis)

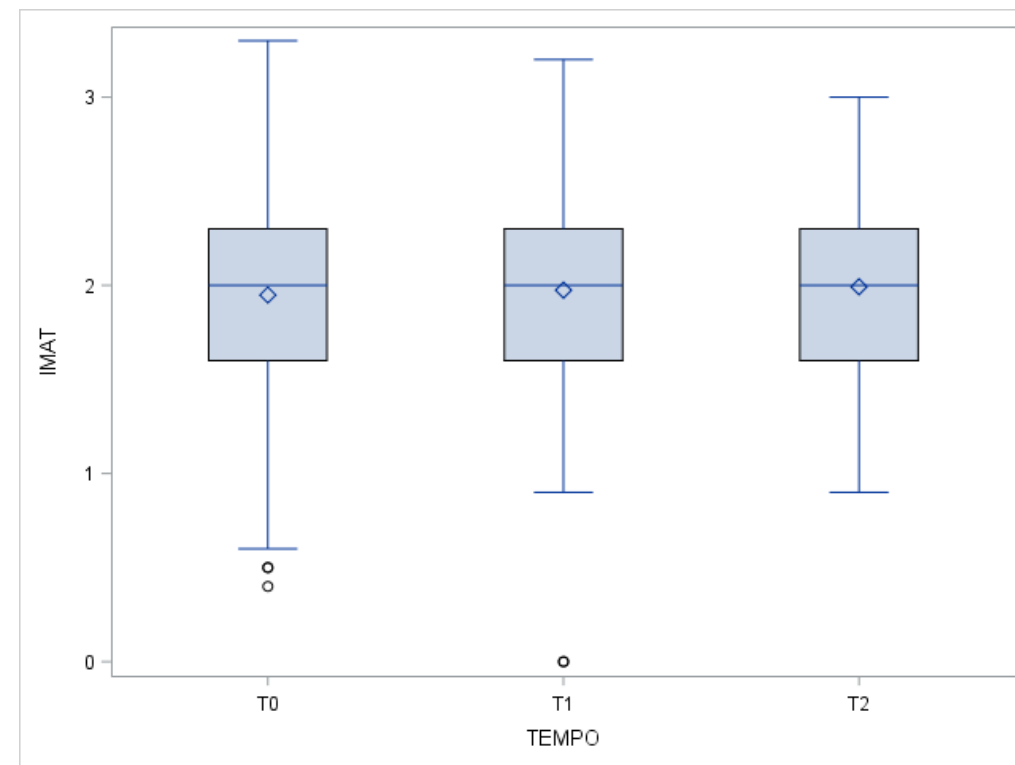
LF/VLF



Wilcoxon Two-Sample Test. $p < .01$

LF/VLF increases from T0 to T2

IMAT



Wilcoxon Two-Sample Test. $P = 0.48$

IMAT does not change from T0 to T2



Some feedbacks...

I would like to let you know that the project was very useful in finding the recovery of psycho-physical health using only practical daily actions from nutrition to breathing. Thank you



Now I sleep better and when I wake up at night I know that by doing the breathing exercise I can easily go back to sleep



It was a pleasant surprise to participate in this project. My stress is not related to covid, but it is 50% related to my work environment, and this has been happening for years. I must say that the breathing technique produces a pleasant sensation in me that stimulates me to apply it. When I wake up and in the evening I feel the need for those five minutes of exercise.





Thanks for the attention!

pietro.delgiudice@asufc.sanita.fvg.it

