

Tores.Theorell@ki.se

Theorell T Psychological health effects of musical
experiences

Springer Brief Books 2014

Retired professor at the Karolinska Inst and previous
director of the National Institute for Psychosocial
Factors and Health

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Developing Leadership and Employee
Health Through the Arts
Improving Leader-Employee Relationships

Authors: **Romanowska**, Julia, **Nyberg**, Anna,
Theorell, Töres

Oxford Univ Press Clift, Camic, Wilson:
Handbook of culture and health (2015)

Chapter 23: Culture and public health activities
in Sweden and Norway

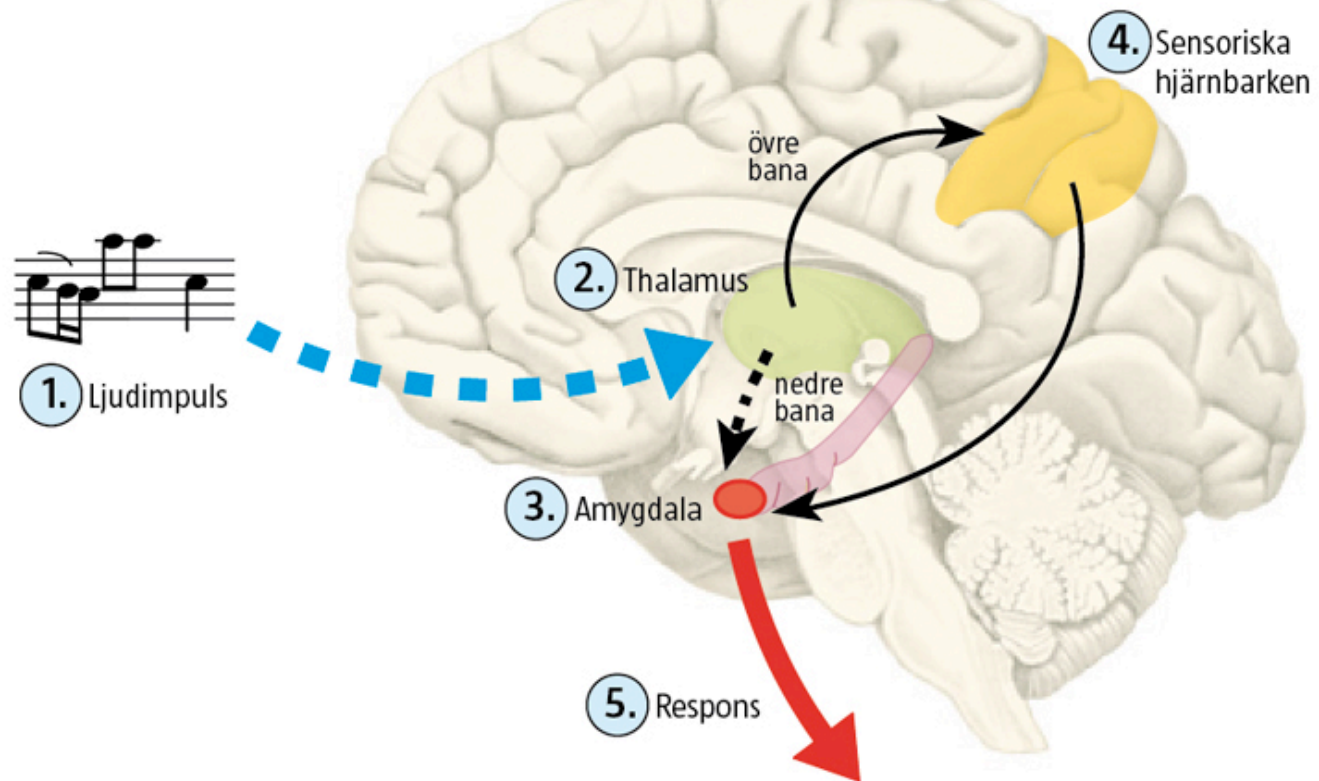
By Töres Theorell, Margunn Skjei Knudtsen, Eva
Bojner Horwitz and Britt Maj Wikström

In the same book

Chapter 9: Psychophysiological links between cultural activities and public health by Töres Theorell

and

Chapter 8 Epidemiological studies of the relationship between cultural experiences and public health by Töres Theorell and Fredrik Ullén



British Journal of Medical Practitioners
2015;8(2):a813

Grape Viding C, Osika W, Theorell T, Kowalski J, Hallqvist J and Bojner
E:

Six different cultural activity packages: Interactive theatre, movie,
vocal improvisation, drawing, mindfulness training and musical show

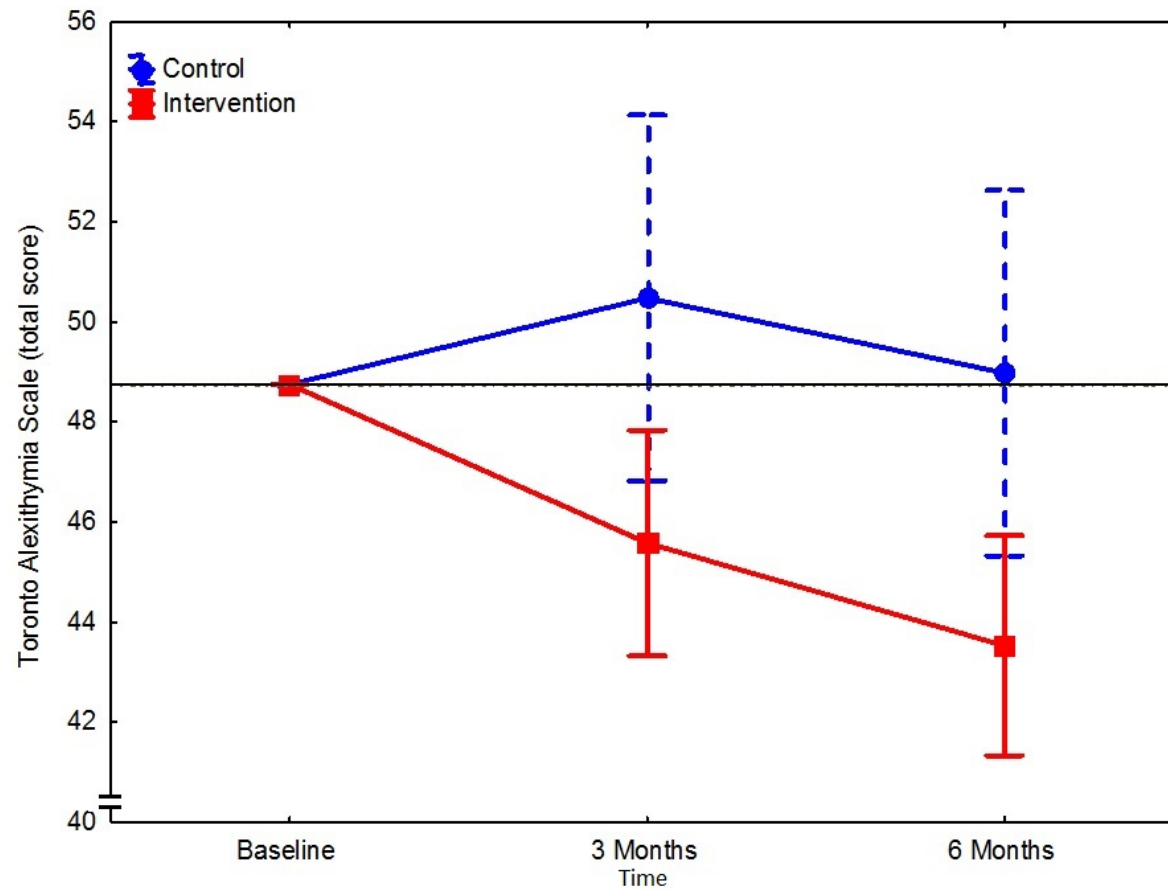
Every program on two consecutive occasions. Altogether 2*6 cultural
occasions

48 burnout women randomised (12:36)

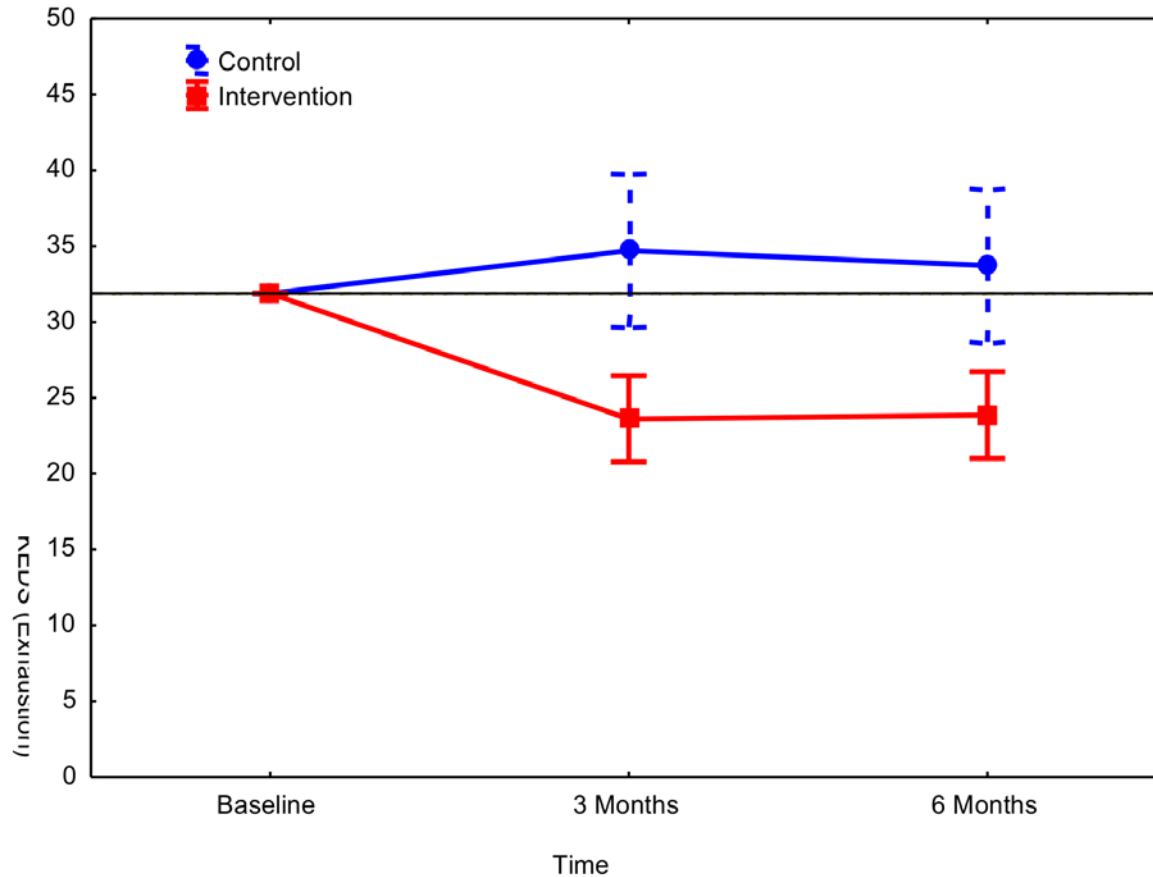
Follow up after intervention (3 months) and follow-up 3 months later
(6 mo)

Alexithymia scores, results from RCT with the "culture palette" in health care centres

(Grape et al Brit J Med Practitioners 2015)



Standardised exhaustion scores (Åsberg et al), results from RCT with the "culture palette" in health care centres (Grape et al Brit J Med Practitioners 2015)



- A large population study based upon the Swedish Twin Registry shows that there is a dose-response relationship between large amount of music practice (accumulated number of practice hours) and good ability to handle emotions both in men and women.
- Theorell T, Lennartsson A-K, Mosing MA, Ullén F: *Frontiers in Psychology* published: 16 July 2014
doi: [10.3389/fpsyg.2014.00774](https://doi.org/10.3389/fpsyg.2014.00774)

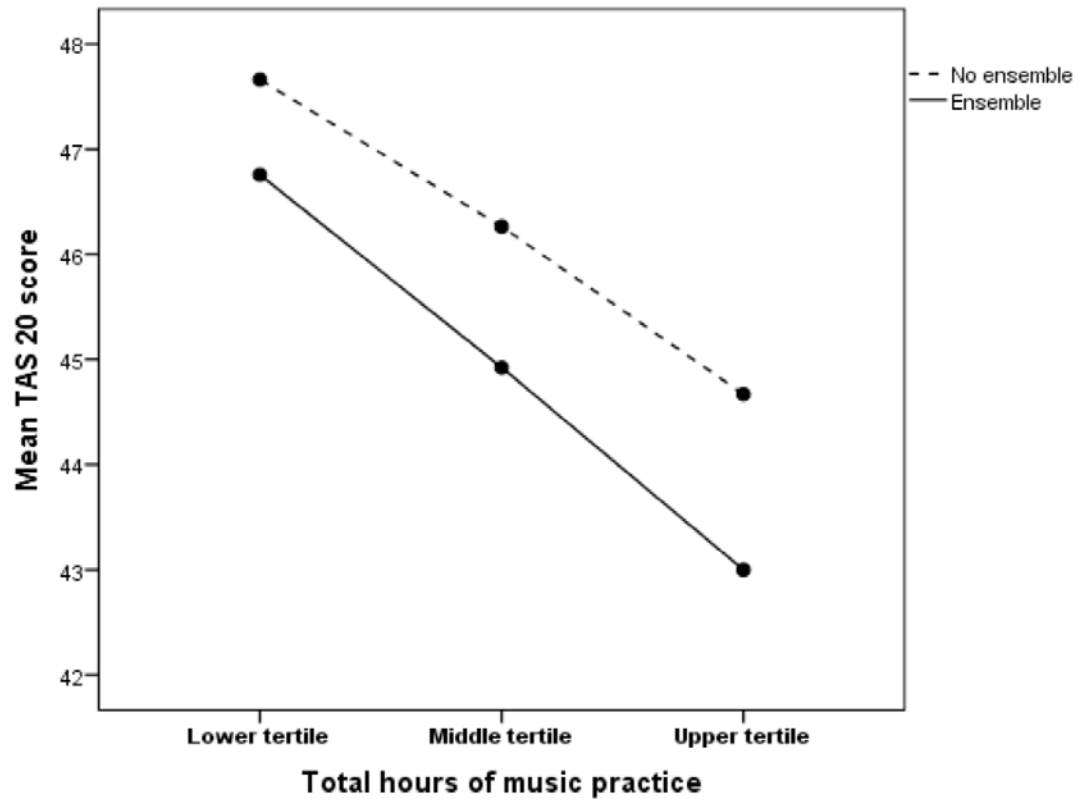


FIGURE 1A Age adjusted marginal TAS-20 means for ensemble (yes/no) and music practice tertiles among subjects (men) who have practiced playing an instrument.

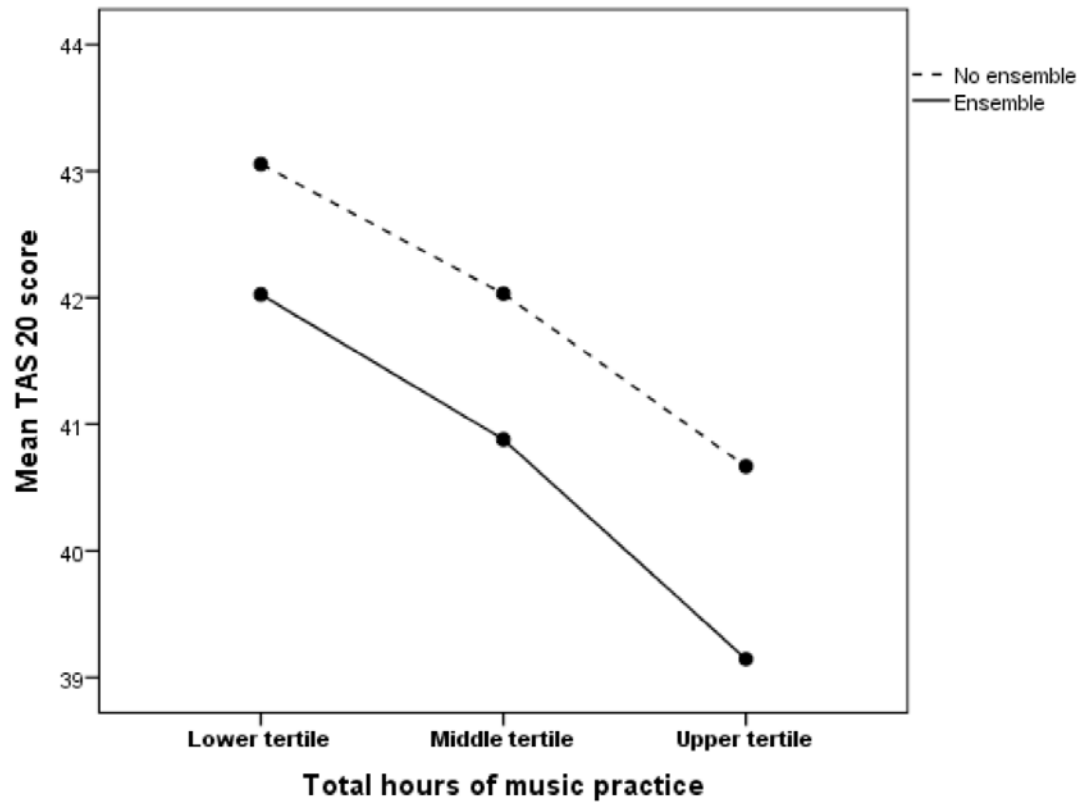


FIGURE 1B Age adjusted marginal TAS-20 means for ensemble (yes/no) and music practice tertiles among subjects (women) who have practiced playing an instrument.

Creative activities protect statistically against alexithymia in multivariate analysis Swedish Twin Registry 27-54 years

Men:

Writing (beta=-0.11)

Music (beta=-0.09)

Visual (beta=-0.07)

Women:

Writing (beta=-0.08)

Music (beta=-0.08)

Theatre (beta=-0.04)

Lennartsson, Bojner, Theorell, Ullén
Creativity Research Journal 2016

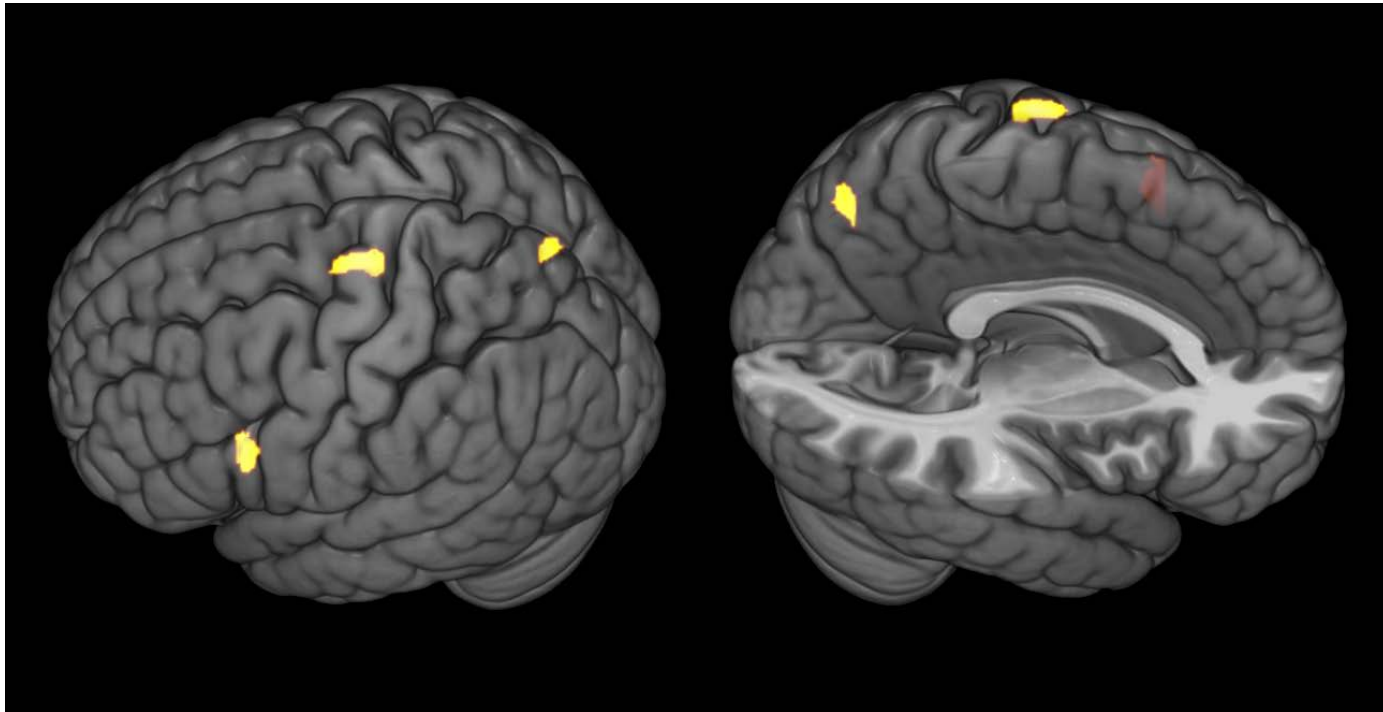
And good skill in dancing is statistically associated
with good ability to communicate feelings

Bojner, Lennartsson, Theorell, Ullén
Frontiers in Psychology, doi:
[10.3389/fpsyg.2015.01096](https://doi.org/10.3389/fpsyg.2015.01096)

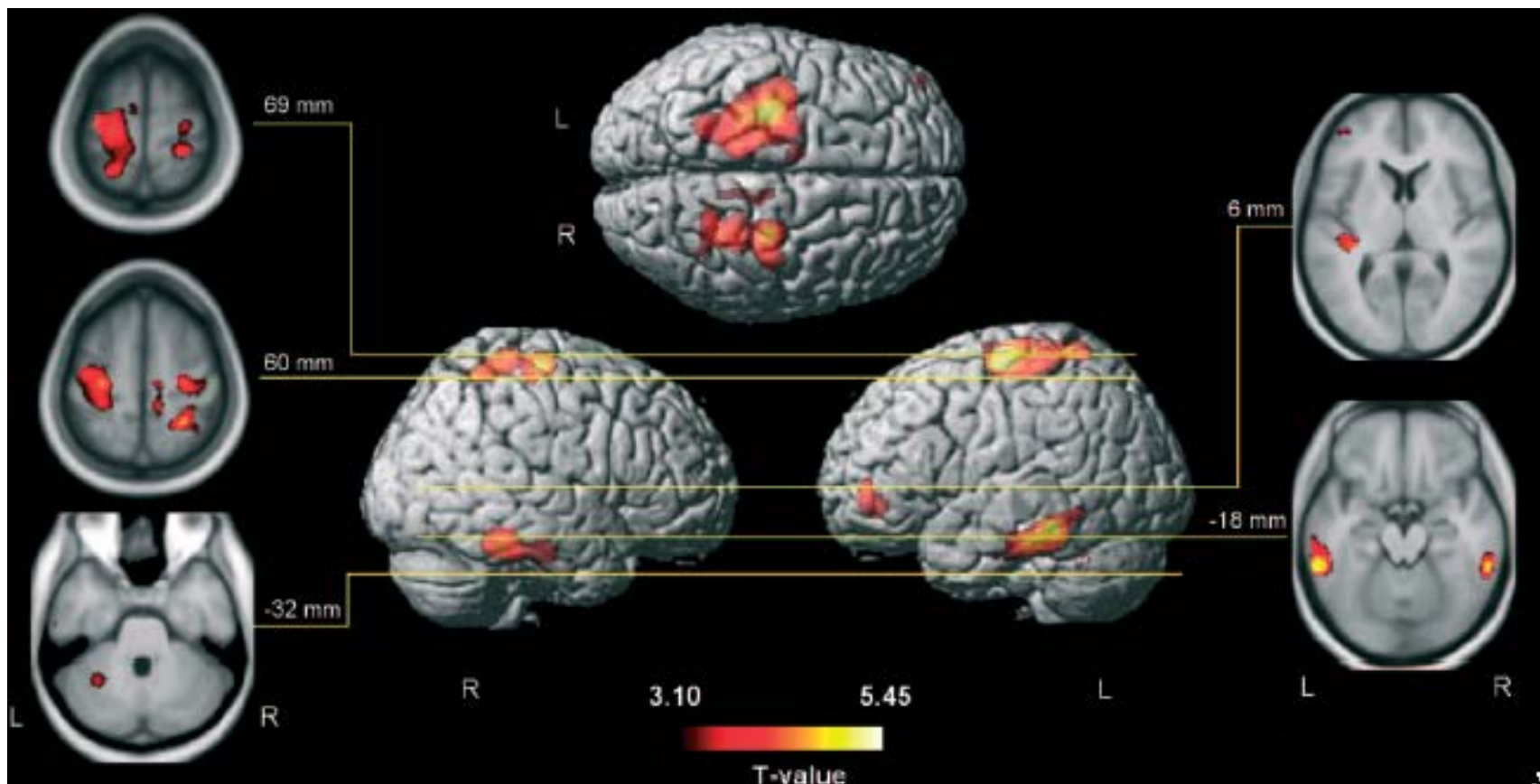
Genetic factors influence training and musical abilities

| | Melody | Rhythm | Pitch | Heritability |
|----------|--------|--------|-------|--------------|
| Training | .32 | .22 | .34 | .57 |
| Melody | | .39 | .39 | .58 |
| Rhythm | | | .31 | .50 |
| Pitch | | | | .39 |

Comparison between pianoplaying and non-pianoplaying monozygotic twins.
Yellow areas larger in playing twin
Ullen F et al in preparation

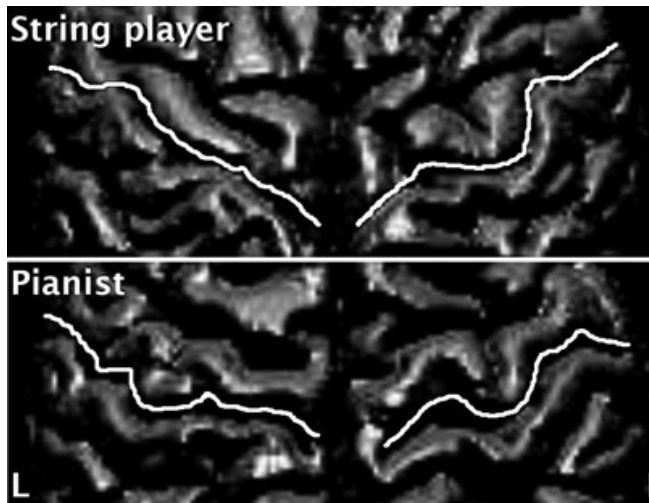


Gray matter in musicians



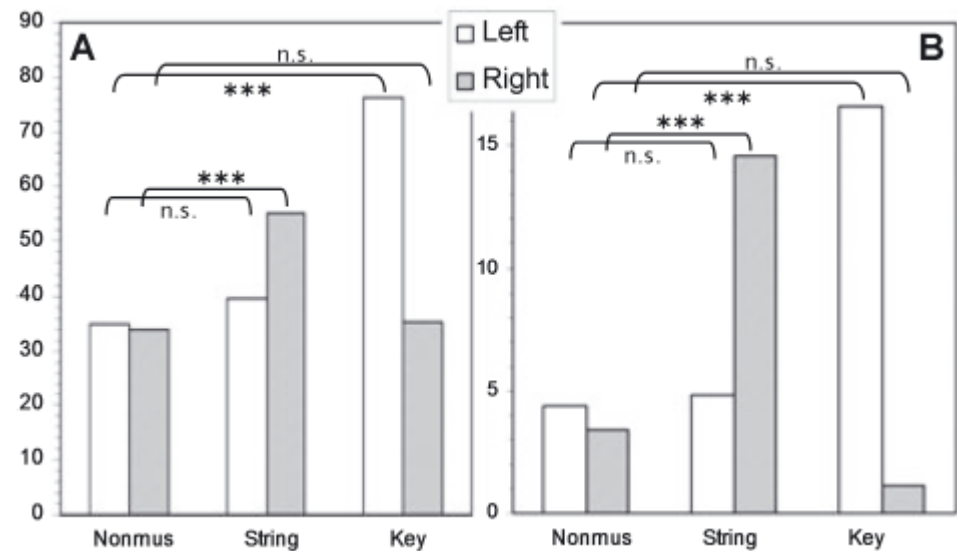
Specific gray matter effects of different musical training

"Omega Sign" (OS) in precentral gyrus



OS-1 or OS-2

OS-2



Bygren's results from the Swedish ULF have been confirmed by an even larger Finnish study

Väänänen A, Murray M, Koskinen A, Vahtera J, Kouvonen A, and Kivimäki M (2009) Engagement in cultural activities and cause-specific mortality: Prospective cohort study

Preventive Medicine, 49: 142-147

Prediction of emotional exhaustion from 2008 to 2010 in Swedish population study of working men and women

Gender, age, income, non-listening boss, psychological demands, decision authority, emotional exhaustion at start and cultural activities at work. N=6214

Significant value in multivariate analysis:

[Emotional exhaustion at start](#)

[Age](#)

[Psychological demands](#)

[Gender](#)

[Decision authority](#)

[Cultural activity at work](#)

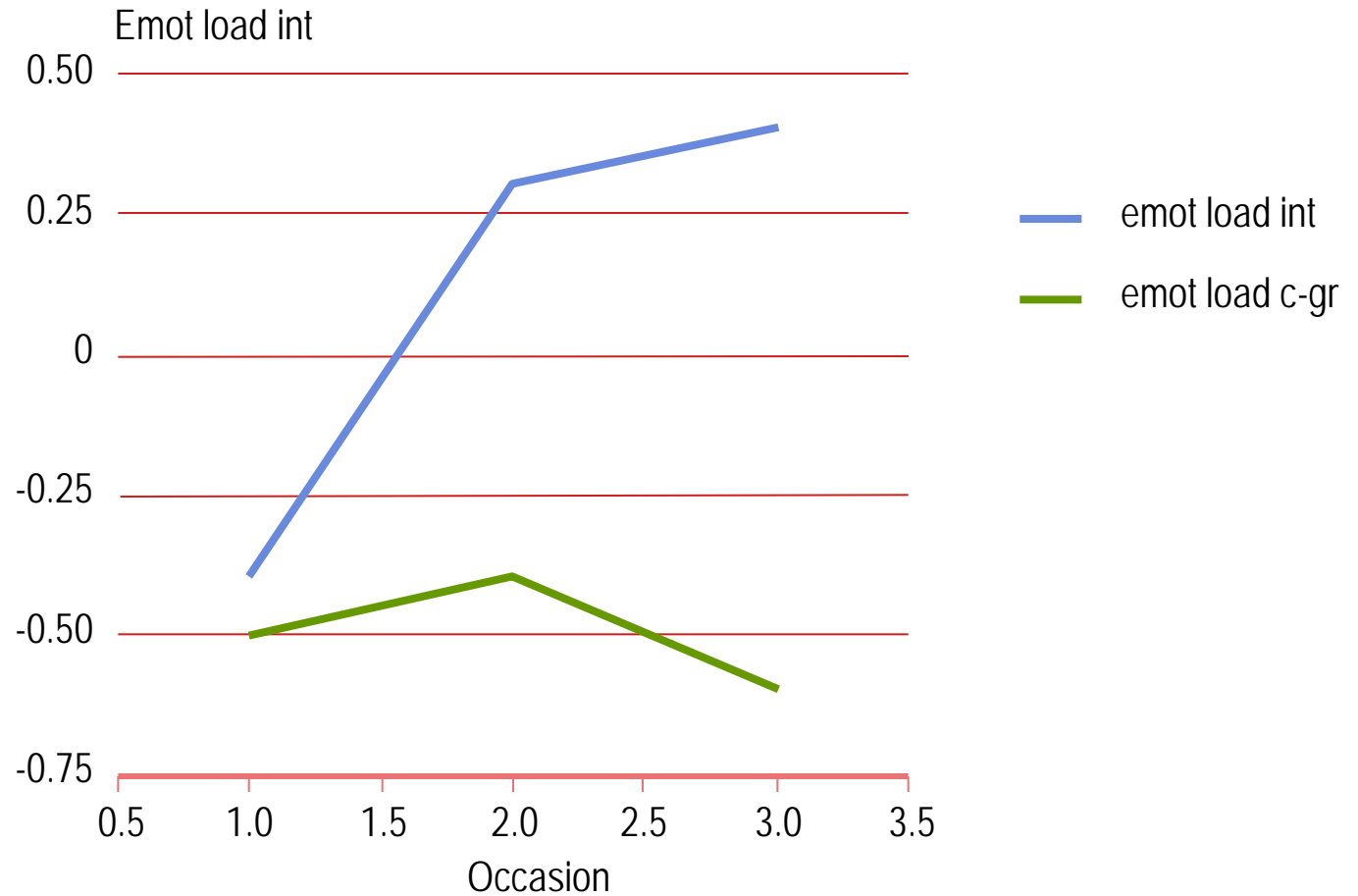
Theorell. Osika, Leineweber, Magnusson Hanson, Bojner Horwitz and Westerlund: Is cultural activity at work related to mental health in employees? Int Arch Occ Env Health 2012 (DOI 10.1007/s00420-012-0762-8)

Wikström BM, Theorell T, Sandström S.
Psychother Psychosom. 1993;60(3-4):195-206.

Medical health and emotional effects of art stimulation in old age. A controlled intervention study concerning the effects of visual stimulation provided in the form of pictures.

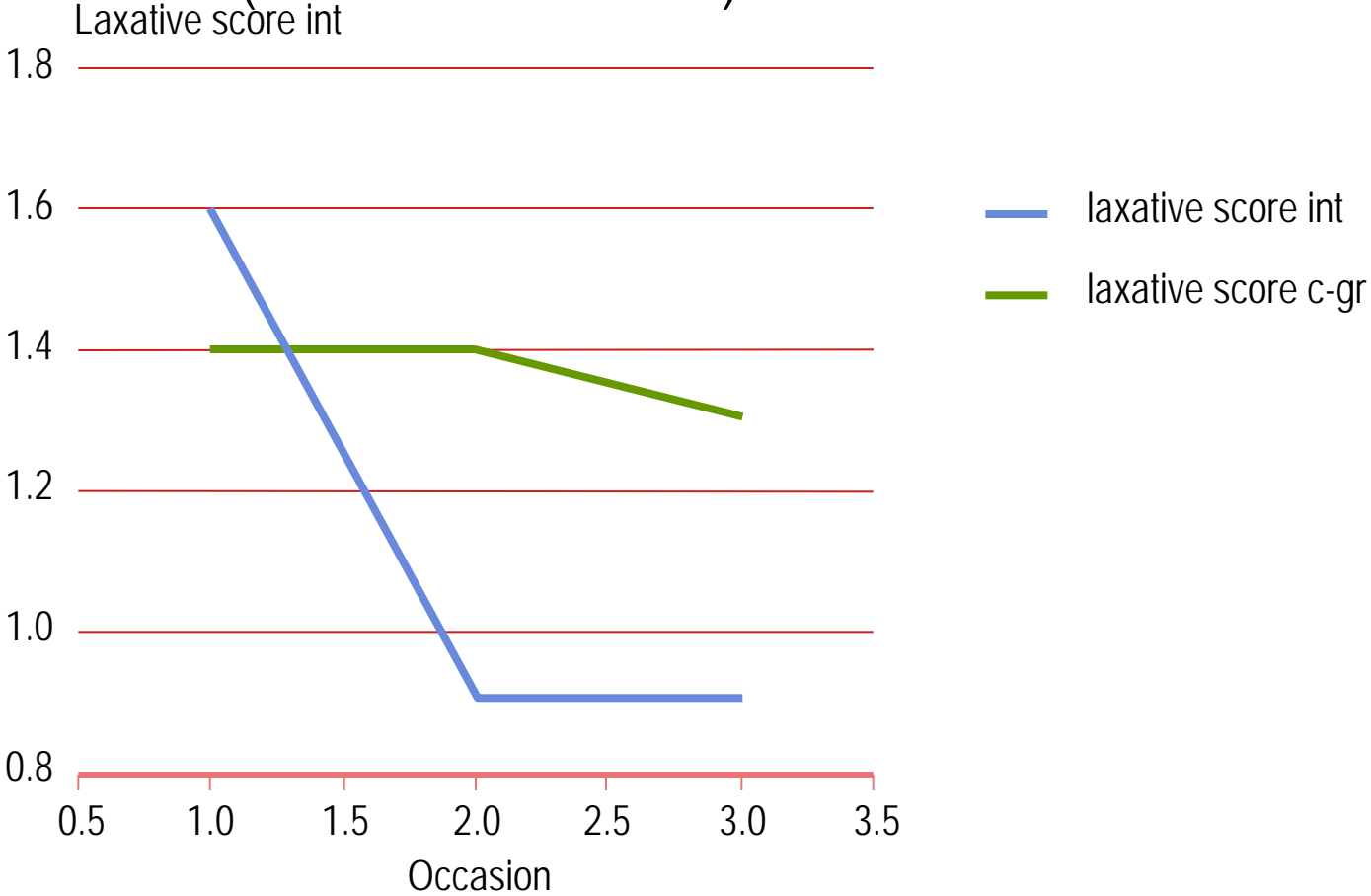
Participants were randomly allocated either to the intervention (pictures, n = 20) or to the control (conversation only, n = 20) group. Participants in both groups had the same amount of social contact with and attention from the experimenter.

Emotional loading (Shalit "wheel") mean scores before start (1.0), after end of intervention 4 months later (2.0) and after follow-up 8 months after start (3.0) (Wikström et al 1993)



Laxative consumption before start (1.0), after end of intervention 4 months later (2.0) and after follow-up 8 months after start (3.0)

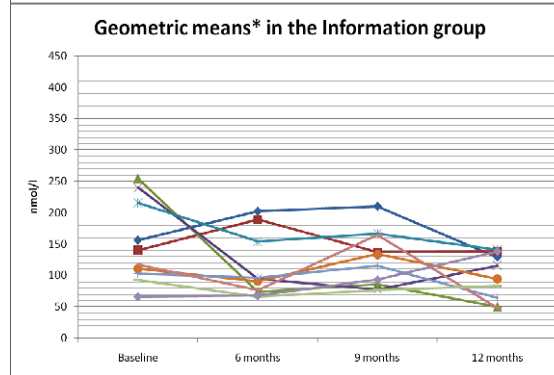
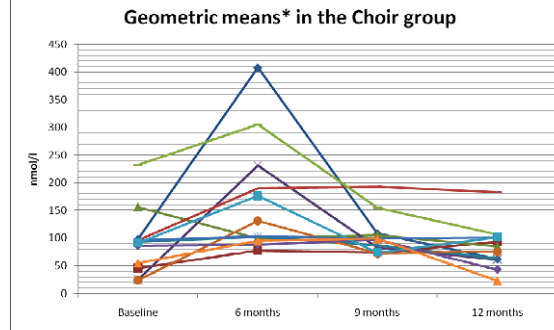
(Wikström et al 1993)



In a home for elderly, one floor was assigned experimental (cultural) and another one control group. Data collected at 0, 3 and 6 months (end of study)

Social activities, wellbeing, carbohydrate metabolism and plasma concentration of regenerative hormones improved significantly in the experimental group but not in the control group.

Arnetz BB, Theorell T, Levi L, Kallner A and Eneroth P Psychosom Med 45: 395-406, 1983



Means for saliva testosterone in IBS patients, randomly selected to either choir or talk group. For each individual and assessment day a point shows the mean of six geometric means from morning to evening. Obs-days are before start, after six months, after nine months and after 12 months

Grape, Wikström, Ekman, Hasson och Theorell *Psychotherapy and Psychosomatics* 79: 196-198, 2010

Cohen, G. (2009). New theories and research findings on the positive influence of music and art on health with ageing. *Arts & Health*, 1(1), 48-62. Routledge.
doi:10.1080/175333010802528033

Elderly living in Washington DC wanted to start singing in choir. Half of them were allowed to do so once a week for two years. The other half (comparable with regard to age, gender, health) had to wait for two years. Assessments (standardized questionnaires) showed significantly better health development in choir group

Project in Skåne

”Vi slår på trummor, inte på varann”
(We beat drums, not one another)

was a success in Slättäng school (pilot) and then in Segevång school (whole school during a whole school year):

Increased percentage reaching high school level, decreased destruction and better results, higher percentage obtaining good enough grades for high school

See Diva Cruz Valois, BA examination, KI, Public Health Science
Fall 2014

Project description also in google

Two alternatives of leader education



Schibbolet



Classical psychosocial educ

General design, randomised leaders

Schibbolet

23 leaders



100
evaluators

Classical

24 leaders



100
evaluators

4 medarbetare + kollega + chef

Schibbolet intervention



Themes

Life/**death**

Power/**Freedom**

Betrayal/**Courage**

Loneliness/**Love**

Romanowska J, Larsson G, Eriksson M, Wikström BM, Westerlund H and Theorell T: *Health effects of an art-based leadership development Program*

Psychother Psychosom 2011;80:78-87

Romanowska J: *Improving leadership through the power of words and music*

Doctoral dissertation Karolinska Institutet, Stockholm, 2014

Both can be down-loaded without cost!

Main results in this randomised study of effects on managers of a 10-month Poetry and Music program (Shibboleth) compared to a more conventional teaching program about stress and psychosocial factors for managers:

18 months after start significantly better development of blood levels of regenerative hormone and health (sleeping difficulty, depressive symptoms, exhaustion) in subordinates under Shibboleth managers than in comparisons.

At the same time more active coping in Shibboleth subordinates

One year after start improved scores for agreeableness and SOC in Shibboleth managers

Biological concomitants of the singing lesson

- In both groups rising plasma oxytocin ($p=0.009$)
- Immunological parameter (TNF-alpha in serum) rising in professionals and decreasing in amateurs (interaction $p=0.045$)
- Similar tendency for serum cortisol (interaction $p=0.063$)

Grape, C., Sandgren, M., Hansson, L-O., Ericson, M. And Theorell, T. Does singing promote well-being?: An empirical study of professional and amateur singers during a singing lesson. Integrative Physiological and Behavioral Science, 38; 65-74, 2003.

Kreutz G: Does singing facilitate social bonding?

Music and Medicine 6:51-60, 2014

21 choir singers filled out questionnaires and delivered saliva samples before and after choir rehearsal as well as before and after chatting

| | Choir 30' | Chatting 30' |
|--------------------------|--------------|--------------|
| Positive feelings before | 3.71+/-0.28 | 3.95+/-0.24 |
| Positive feelings after | 5.39+/-0.27 | 4.55+/-0.27 |
| Negative feelings before | 2.73+/-0.25 | 2.76+/-0.28 |
| Negative feelings after | 1.86+/-0.20 | 2.80+/-0.35 |
| Oxytocin before (pg/ml) | 13.04+/-1.14 | 14.28+/-1.40 |
| Oxytocin after | 18.08+/-1.32 | 15.90+/-1.39 |

We should also be prepared to look for negative effects

Vaag, Saksvik, Milch, Theorell, Bjerkeset
Appl Arts & Health 5:51-63, 2014

1100 municipality employees were invited to participate in Sound of Wellbeing (pop and rock choir). 472 at baseline, 217/94 part/nonpart in follow-up.

Participants rated improvements in work engagement and health whereas ***nonparticipants rated deterioration***

Childhood factors independently predicting active music making in adult years (27-54 years)

Older half compared to younger 1.51 (1.29-1.76)

Men (35%) compared to women (65%) 2.11 (1.78-2.49)

Negative: Late start (change per year)

0.93 (0.89-0.96)

Swedish Twin Registry: Theorell, Lennartsson, Mosing, Madison, Ullén
Acta Paediatrica 2015

- Own choice of instr/song (48%) 1.50 (1.29-1.74)
- Ensemble (42%) 1.22 (1.03-1.45)
- Improvisation (11%) 1.35 (1.03-1.77)
- By ear (23%) 1.44 (1.19-1.75)

- Negative: Learning by heart (57%) 0.71 (0.61-0.83)

- Classical music (34%) 1.82 (1.52-2.17)
- Pop/rock (48%) 2.49 (2.13-2.91)
- "Other" genre (24%) 1.61 (1.33-1.95)

Negative

- Contemporary music (10%) 0.69 (0.50-0.86)

- Lessons more often than once a week (24%) 1.75 (1.43-2.15)
- Completely positive attitude in parents (73%) 1.21 (1.01-1.10)