

# Journal for Meditation and Meditation Research 2002

with contributions of

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Summaries:

Studies in Meditation and  
Meditation Research 2002

Yoga Inventory

Zen Development Questionnaire



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## **The role of simplicity (effortlessness) as a prerequisite for the experience of Pure Consciousness - the non-dual state of Oneness: “Turiya”, “Samadhi” in Meditation.**

### **Abstract:**

Psychological and physiological data marking the state of “pure consciousness” – Turiya or Samadhi – are reported. Empirical data concerning favourable and hindering conditions for Advaita Meditation are given. Preliminary experiences with other techniques, educational background didn’t interfere in any way; hormon treatment, lack of motivation and deviation from an age between approximately 35 and 40 years in both directions (younger or older) reduce the quality of meditation significantly. Similar age-related effects can be observed with other meditation groups.

Advaita Meditation may be learned within four days to a satisfying extent for about 67% of people, whereas 11% fail to meet any of the scheduled criteria within this time. Using Piron’s MEDEQ and his original sample as a control group, 30 practitioners of Advaita Meditation yielded significantly greater values of meditation depth on the general scale as well as on all five subscales - hindrances, relaxation, personal self, transpersonal qualities and Transpersonal Self (non-Duality), which exhibited the most prominent difference. The role of simplicity (effortlessness) as an important factor for effective meditation is discussed.

*Keywords: Transcendental Meditation, Advaita Meditation, meditation depth, Meditation Depth Questionnaire*

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## 1. Introduction

Advaita Meditation is an easy and effortless technique of bringing the attention to subtler and more refined levels of thinking. The teaching of the technique is performed in exact accordance with the steps prescribed by Maharishi Mahesh Yogi for his “Transcendental Meditation” in the late sixties and early seventies. The author took his teacher training in the USA in 1968 and in India in 1969 under the personal guidance of Maharishi Mahesh Yogi. Therefore the method of Advaita Meditation “technically” can be considered to be identical to the technique of “Transcendental Meditation”, but it is taught in complete independence from the “TM-movement” for reasons given in Fehr (2002) – similar reasons expressed in short by Piron (2001): “...characterized by ideologies that seem to be questionable in the eye of the author”.

Extensive research in the last 30 years on this type of – Transcendental or Advaita - Meditation has shown positive effects on health (e.g. Orme-Johnson 1987) and on psychological well-being (Eppley 1989, Fehr 1996 , Grawe 1994).

## 2. Latest research: differentiating consideration of states during meditation

During the last few years, a more sophisticated analysis of the different states within a single meditation has been developed (Ott 2001, Travis et al. 1997 , Travis 1999, Travis et al. 2000, Travis 2001 ). Especially the investigations by Travis and his colleagues Pearson and Wallace within the last five years about Maharishi Mahesh Yogi’s “junction point model” have lead to a more precise description of the psychophysiological characteristics of the fourth state of consciousness, Turiya (transcendental or “pure” consciousness, also called “advaita” consciousness). This state was postulated and had been described for the first time three decades ago by Wallace (1970).

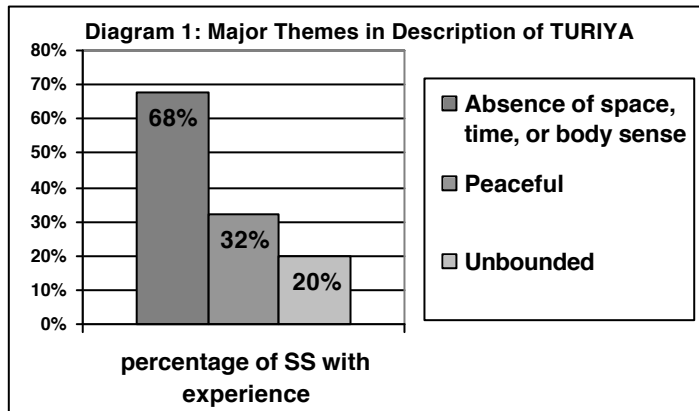
*TURIYA – pure consciousness: Summarising latest research*

*Psychological Marker:* Travis (2000) analysed the free descriptions of his 52 subjects about their experiences of “consciousness itself” by content analysis and found the following main themes. The state of pure consciousness was characterised by “absence of the very framework (68%: time, space and body sense) and content (qualities of inner and outer perception), that define waking experiences”. 32% of the subjects experienced pure consciousness as “peaceful“ and 20% as “unbounded”.

“... a couple of times a week I experience deep, unbounded silence, during which I am completely aware and awake, but no thoughts are present. There is

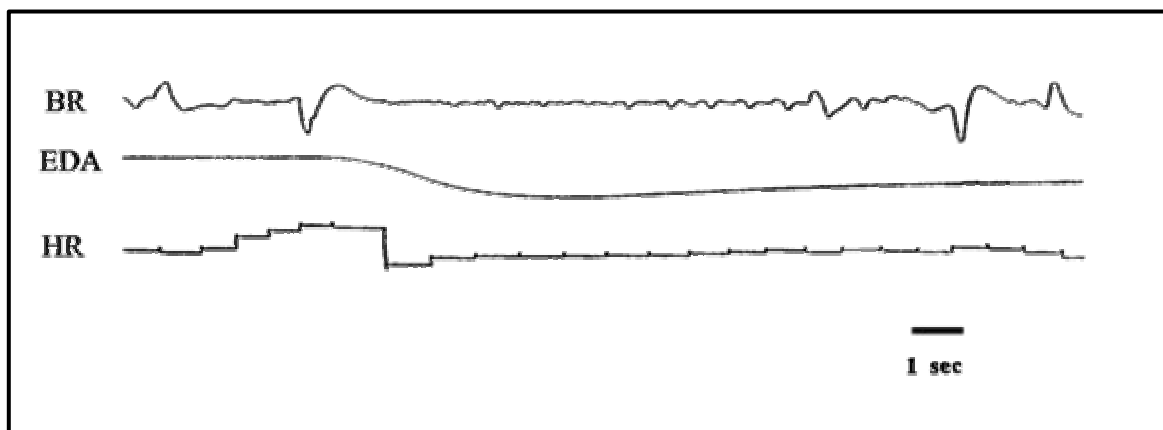
no awareness of where I am, or the passage of time. I feel completely whole and at peace.”

Diagram 1: Main themes in the description of Turiya



*Turiya – Physiological Marker:* Physiological tracing during pure consciousness is shown in the following figure; it presents an example of apneustic breathing (BR: exhalation is down) with autonomic orienting at the onset of breath changes (EDA: increasing skin conductance is down; HR: decreasing heart rate is down). Note the skin conductance response and the heart rate response following the onset of the apneustic breathing. (Travis and Pearson, 2000)

Figure 1. Physiological tracing during pure consciousness



“During phases including transcendental consciousness experiences, skin conductance responses and heart rate deceleration occurred at the onset of respiratory suspensions or reductions in breath volume.” (Reduction in breath volume was about 40%) (Travis & Wallace, 1997)

“Transcending, in comparison to “other” experiences was marked by: (1) significantly lower breath rates; (2) higher respiratory sinus arrhythmia ampli-

tudes; (3) higher EEG alpha amplitude; and (4) higher alpha coherence. In addition, skin conductance responses to the experimenter initiated bell rings were larger during transcending.” (Travis, 2001)

TM-sessions were distinguished by (1) lower breath rates, (2) lower skin conductance, (3) higher respiratory sinus arrhythmia levels, and (4) higher alpha anterior-posterior and frontal EEG coherence. (Travis, 1999)

To sum up these results of Travis and colleagues, we can consider the following physiological features to be characteristic of the fourth state of consciousness according to our knowledge at present:

1. Respiratory suspension (apneustic breathing); significantly lower breath rates
2. Higher respiratory sinus arrhythmia amplitudes
3. Higher EEG alpha amplitude
4. Higher alpha coherence
5. Lower skin conductance; larger skin conductance responses ; skin conductance orienting (at the onset of apneustic breathing)

### **3. Favourable and hindering influences for meditation**

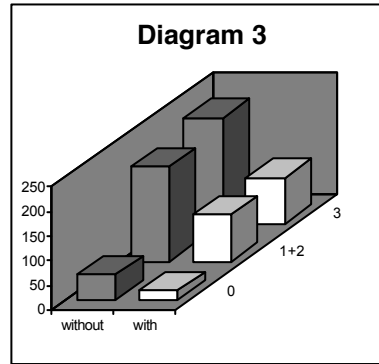
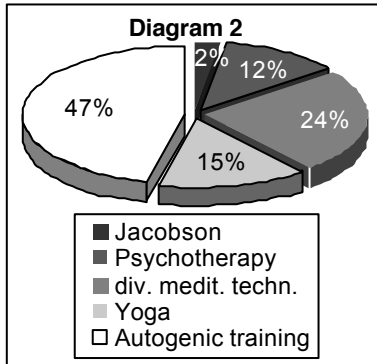
In a field study we gathered data of meditation beginners. During the first four days of meditation training every meditator has to fill out a detailed daily questionnaire about the experiences with meditation at home. For a representative sample comprising 670 of about 1000 meditating clients - Transcendental resp. Advaita Meditation – covering 17 years of teaching meditation, all available questionnaires – i. e. four per person – were analysed with regard to the criteria met during the first days of meditation. Analysis of these data allows us to answer some of the questions put by Engel (2001, p. 53), at least as far as TM and Advaita Meditation are concerned.

209 out of the 670 patients had preliminary experience with one or more other techniques before – 47% had practiced Autogenic Training, 15% Yoga, 24% various techniques, 12% have had psychotherapy and 2% had been trained in progressive muscle relaxation (Jacobson). (Diagram 2)

*Preliminary experience* doesn't seem to contribute to or hinder the quality of the meditation experience. There seems to be no training effect in any direction (conducive or hindering) for any of the registered techniques (Jacobson's PMR, Psychotherapy, ZEN, Yoga, Autogenic training) for Advaita Meditation. This could tentatively be interpreted as a principal methodological difference

(non-correspondence) of Advaita Meditation with respect to the other techniques. (Diagram 3)

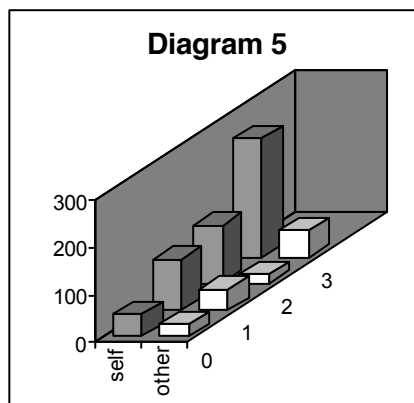
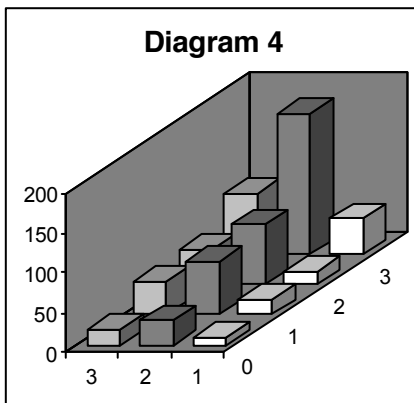
Diagram 2: Experience with other techniques / Diagram 3: Preliminary experience and Advaita Meditation



The *educational standard* had no effect on the quality of the meditation experience during the first days of meditation. Education (low=1, medium=2, high=3) did not correlate with the quality of the meditation experience during the first days of meditation. (Diagram 4)

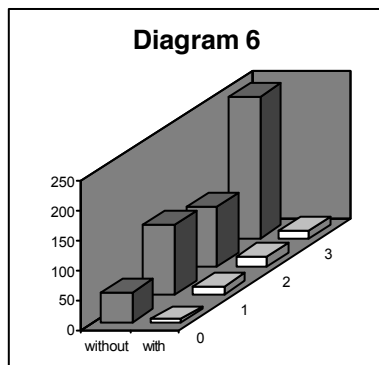
The question of *motivation*, however, definitely matters: There is a significant difference between the quality of the initial meditation experience of self-motivated and other-motivated beginners. Self-motivated meditators meet significantly more criteria of successful meditation. ( $\chi^2 = 19,49$ ,  $df = 3$ ,  $p = .000$ ). Beginning with meditation as a result of being pushed by persuasion of well-meaning people or by order of parents seems to be an unfavourable condition for fulfilling the criteria. (Diagram 5)

Diagram 4: Educational standard / Diagram 5: Motivation



Therapy with hormones (the “pill”, thyreoid hormones, cortison etc.) had a substantially detrimental effect as to the number of criteria met by the 53 clients under hormone treatment during the first days of meditation. In a study following some years later we could establish this disadvantageous effect for psychotherapy, too. This effect was significant ( $\eta^2 = 8.57$ ,  $df = 3$ ,  $p = .037$ ). We found a significant betterment in some standardised scales measuring psychological well-being (e.g. psychosomatic symptoms and depression) about two to four months after stopping the hormonal medication compared to controls. That is why we suppose a blocking of experiences of subtler (“subconscious”) mental levels via the influence of the hormones on the limbic system with the result of a loss or narrowing down of the range of homeostatic balancing and coping in the emotional domain, and a blockage for the experience of subtler states of consciousness during meditation. (Diagram 6)

Diagram 6: Hormones and the blockage of subtler experience



There is a significant relationship between *age* and the quality of meditation during the first days. Meditation beginners between 30 and 40 years of age exhibit the best meditation experiences within the first days. The greater the deviation from this “middle” age (the younger or older), the less criteria are met ( $\eta^2 = 31.95$ ;  $df = 12$ ,  $p = .002$ ). (Diagram 7)

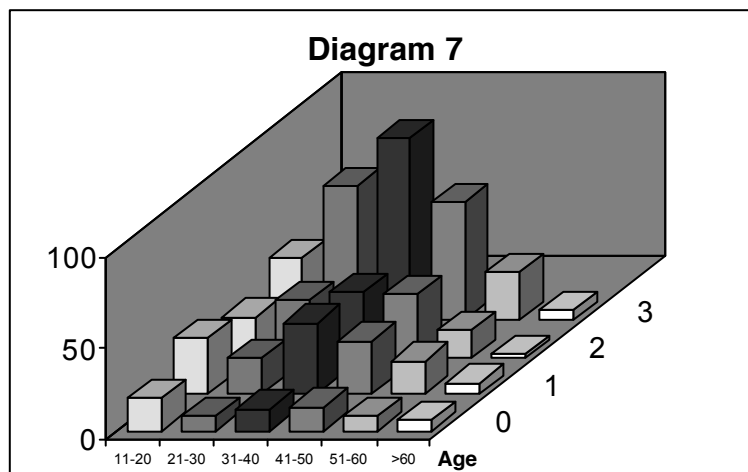
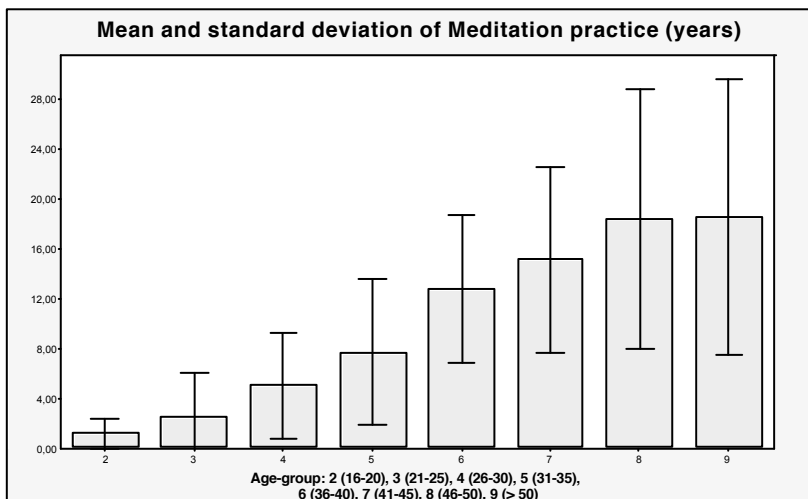
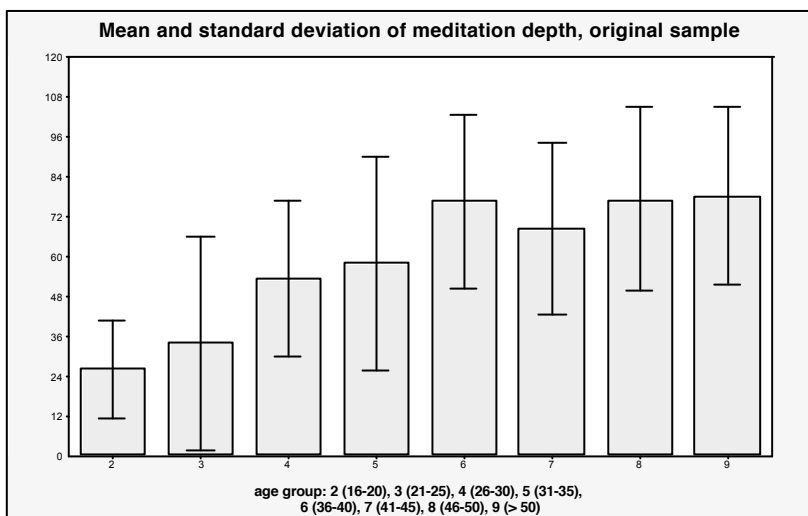


Diagram 7: Meditation Depth and Age

The MEDEQ by Piron (2001) yielded a corresponding result. Piron's sample consisted of 122 subjects, practising seven different methods of meditation. Obviously the meditation depth in Piron's sample increased (see Diagram 8) until it reached its maximum in age-group six (36-40 years of age). There was no decrease of the depth of meditation in the age groups 7 – 9 (age 41-45, age 46-50, age 50+), but the average length of meditation practice (in years) for these age-groups had increased further and was considerably greater compared to the age-groups 1 – 5. In spite of increasing meditation practice (in years) there was no corresponding further progress in meditation depth to be noted. May be the depth shown by the meditators between 35 and 40 years of age represents an overall optimum level, beyond which a further increase of depth seems to be unlikely. Possible explanations for this phenomenon could be on a psychological as well as on a physiological level – but at present we have no answer to this question. (see Diagrams 8 and 9).

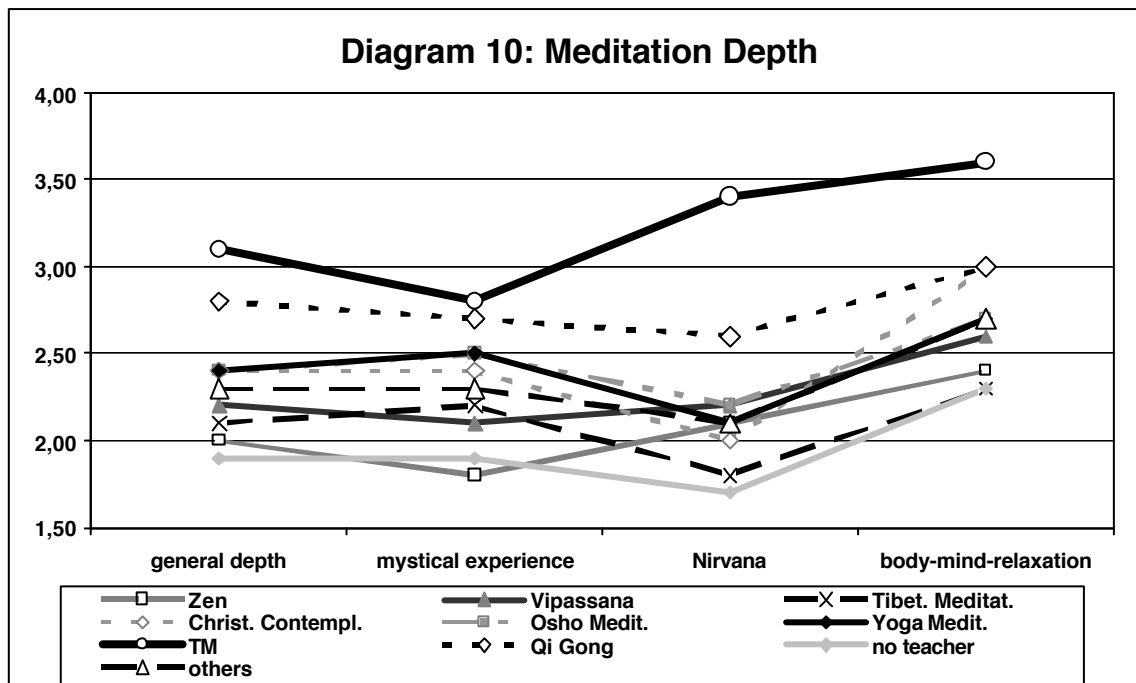
Diagram 8: Meditation Depth / Diagram 9: Meditation practice in years





In a field study using different questionnaires Engel (2000) gathered comprehensive information about the experiences of 1550 experienced long-term practitioners of various meditation traditions including Transcendental Meditation. Meditation depth was estimated using a questionnaire developed by Müller and Ott (see Ott 2001). For the sake of economy, Engel applied only the highest loading items representative of the factors and computed a general score – general depth (total mean of all items) - in addition to the single factor scales. TM – practitioners exhibited the highest scores on all four scales: “general depth”, “mystical experience”, “Nirvana” and “body-mind-relaxation”. The data were given by Engel in a table. They are represented here in a diagram instead (see Diagram 10 ).

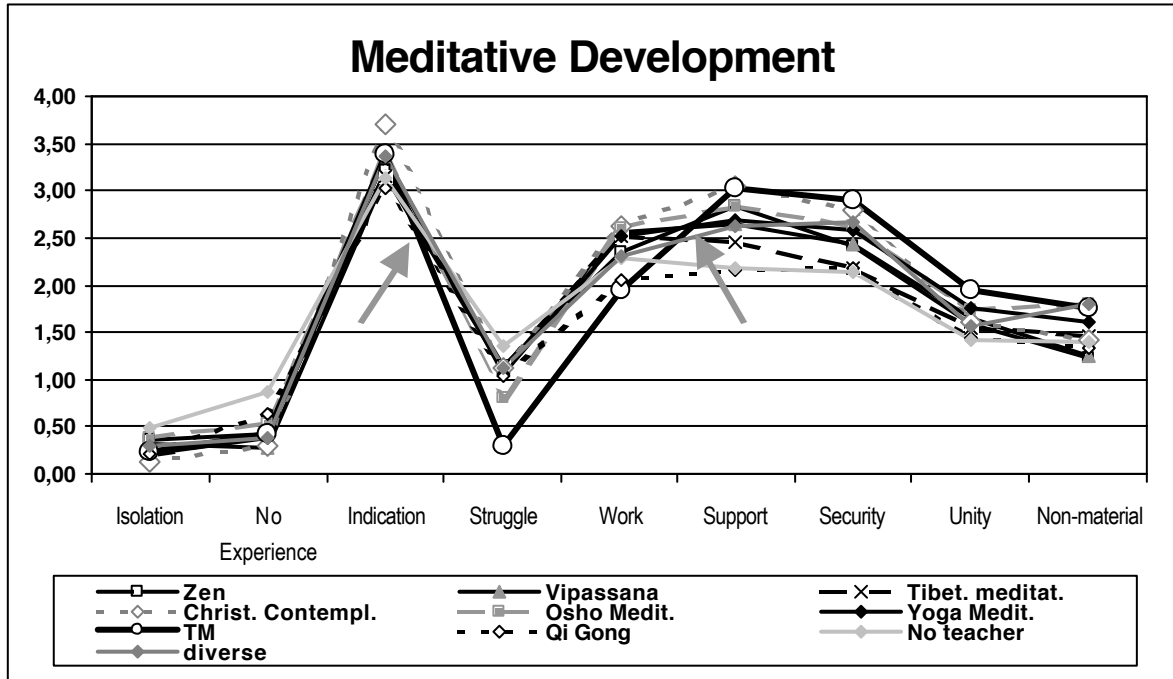
Diagram 9: Meditation Depth (Engel’s field study)



Another point of view raised by Engel (2001) was the *meditative development*. Engel hypothesised a spectrum of developmental stages beginning with “Isolation” and ending with “non-material” (experience). According to his interpretation, “the similarity of the overall development is shown in the parallel development of the trends; if this were not the case the lines would criss-cross each other.” There is in fact a distinct criss-crossing of the TM-line across the lines of all other techniques between the stages “work” and “support” and another one across all lines but one (Christian Contemplation) between the stages “indications” and “struggle”. - This means that Transcendental Meditation in spite of exhibiting the least values in “struggle” and “work” among the meditation techniques studied shows the highest values in the stages “support”, “security”, “unity” and the second highest in the stage “non-material”. This result

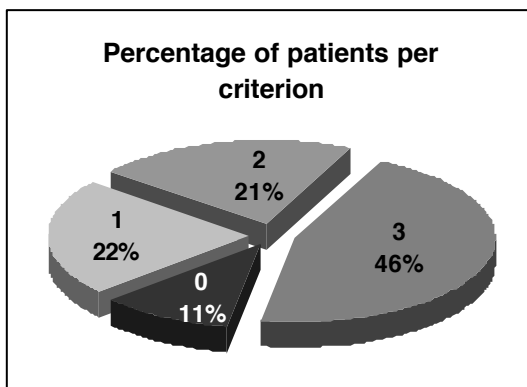
could provide an argument for Maharishi Mahesh Yogi's hypothesis, i.e. that *effortlessness* is a prerequisite for successful meditation and that any effort seems to be rather detrimental to instead of supportive for meditation. (Diagram 11)

Diagram 11: Meditative Development



In the analysis of our own data we estimated the quality of meditation of our sample of 670 beginners roughly by analysing the questionnaires of the first four days, using a 4-point scale: level 3 - all criteria of successful meditation reached; level 2 - most of the criteria (but not all) reached; level 1 - some (few) criteria reached; level 0 - none of the criteria reached. The number and percentage of people for each level of meditation are given below.

Diagram 12: Percentage of patients per criterion



- 308 patients for level 3 (46%),
- 141 patients for level 2 (21%),
- 150 patients for level (22%) and
- 71 patients for level 0 (11%).

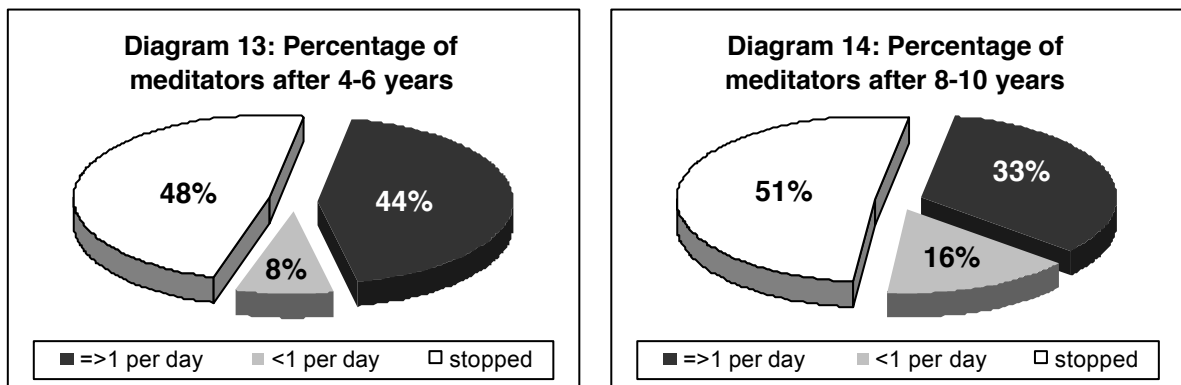
For level 3 the following points had to be experienced completely:

- Deep relaxation
- Effortlessness, ease
- Alteration of sense of time
- Quiet mind
- Reduction of breath or deeper inhalation in between from time to time
- Happiness in between
- Absence of body sense, surroundings and thoughts
- Positive effects lasting for sometime after meditation
- Spontaneous changes in behaviour and action outside of meditation

### *Drop-out rate*

As a result of an inquiry by correspondence some years ago an estimated 55% of practitioners were still meditating once or twice daily five years after their initiation, about 24% on a irregular basis – now and then -, the rest had stopped. The estimation for the next five years (years 6 – 10 after initiation) was 38% for regular meditation once or twice daily, whereas 68% of the subjects had stopped completely.

Diagram 13: Percentages 5 years after / Diagram 14: Percentages 10 years after



In spring 2002, using a telephone survey we tried again to estimate the percentage of clients still meditating after about 5 and 10 years. We limited the minimum number of persons to be reached for both time intervals to 50. 61 calls had to be made to reach 50 meditators about five years after their start. 11 still practised regularly twice daily, another 11 practised once daily, 4 practised now and then (less than once daily) and the remaining 24 had dropped meditation completely. - 85 calls had to be made to reach 51 meditators about 8 - 10 years after their start. 8 still practised regularly twice daily, another 9 practised

once daily, 8 practised now and then (less than once daily) and the remaining 26 had turned away from meditation. We think these rates of meditators still practising after 5 or 10 years are relatively reliable. They are higher than what we expected them to be. (Diagrams 13 and 14)

#### **4. Focus: Meditation Depth**

The aim of this study was to get more detailed information about the depth of meditation with practitioners of Advaita Meditation in comparison to other meditation methods.

##### *Method*

We applied Piron's MEDEQ. The MEDEQ combines different advantages for the measurement in question: It offers an objective, reliable and valid one-dimensional measurement of the general meditation depth and allows an estimation of five different levels of depth:

1. Hindrances  
(restlessness, busy mind, laziness, feeling bored)
2. Relaxation  
(feeling well, smooth breathing, patience and calmness)
3. Personal Self  
(mindfulness, attentive control over the mind, being detached from thoughts, emotions and sensations; strong energy; being centred)
4. Transpersonal (Essential) Qualities  
(love, surrender, connection, joy, grace, humility; transcending time, methodical level and separation)
5. Transpersonal Self (Non-duality)  
(complete rest of thoughts, no differentiations, comparisons and judgments anymore; unity of all; emptiness and infinity of consciousness; subject/object-transcendence)

The test construction of the MEDEQ was performed with considerable methodological thoroughness (item, factor and cluster analysis) guaranteeing satisfying statistical characteristic values concerning criterion, convergent and discriminant validity, split-half- and parallel-test-reliability, homogeneity (internal consistence, Cronbach's Alpha = 0.92) and uni-dimensionality. Piron's sample included the following seven groups: 0-Diverse (n=18), 1-Yoga (n=20), 2-ZEN (n=20), 3-Theravada (n=17), 4-Tibet. Mahayana (n=18), 5-Christl. Con-

templation (n=17), 6-Qigong (n=12). Group 7 is the sample under consideration in this study – Advaita Meditation (n=30).

We asked 30 practitioners of Advaita Meditation to participate in the study. Table 1 shows the frequencies for gender and age-groups.

Table 1: Frequencies per age-group and gender

<b>age</b>	<b>16-20</b>	<b>21-25</b>	<b>26-30</b>	<b>31-35</b>	<b>36-40</b>	<b>41-45</b>	<b>46-50</b>	<b>&gt;50</b>	<b>sum</b>
<b>m</b>	1	1	4	2	1	2	-	1	<b>12</b>
<b>f</b>	-	-	4	2	-	7	3	2	<b>18</b>
<b>sum</b>	1	1	8	4	1	9	3	3	<b>30</b>

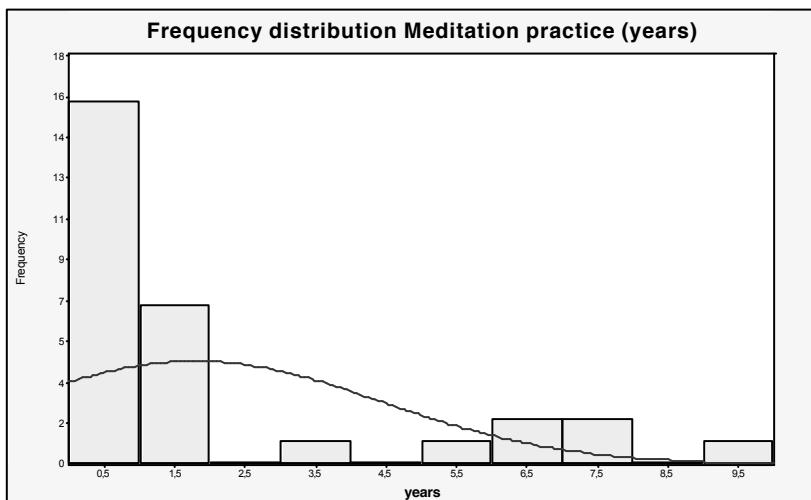
All practitioners meditated twice daily; 22 meditated for 25 minutes, one participant used to meditate 20 minutes, six had set their time to half an hour and one to 45 minutes. The mean duration of meditation practice (in years) was 1.77 ( $s = 2.63$ ), the Median was 0.55, which shows a rather asymmetric distribution. The practice (in years) for 70% of our subjects ( $n = 21$ ) was less than one year, and for half of the subjects (50%) it was only up to six months.

We performed ANOVAs and two-tailed T-Tests. A result of  $p$  less or equal to .05 probability was decided to be significant, of  $p$  less or equal to .01 probability as highly significant. In order to estimate the relevance of a result, we computed the effect-sizes (ES).

Table 2: Meditation length (years), frequency, percentage, cumulated percentage (Advaita Meditation group)

Practice in years	Frequency	Percent	Cum Percent
0.01	6	20.0	20.0
0.10	5	16.7	36.7
0.30	2	6.7	43.3
0.40	1	3.3	46.7
0.50	1	3.3	50.0
0.60	1	3.3	53.3
1.00	5	16.7	70.0
1.20	1	3.3	73.3
1.30	1	3.3	76.7
3.00	1	3.3	80.0
5.00	1	3.3	83.3
6.00	2	6.7	90.0
7.00	2	6.7	96.7
9.00	1	3.3	100.0

Diagram 15: Frequency Distribution of meditation practice in years in the Advaita Meditation group (n = 30)



## 5. Results

ANOVA showed no significant inhomogeneity between the 7 meditation groups of Piron's sample and the Advaita Meditation group for the variable meditation depth (diagram 16), but a highly significant inhomogeneity for the variable meditation practice in years (diagram 17). Scheffé Tests exhibit sig-

nificant differences between the length of practice of group 7 (Advaita-Meditation) and groups 1 (Yoga), 3 (Theravada), 4 (Tibet. Mahayana), 5 (Christian Contempl.), whose duration of practice in years had been significantly greater. There were no further significant differences.

Diagram 16: Meditation Depth of the different meditation traditions

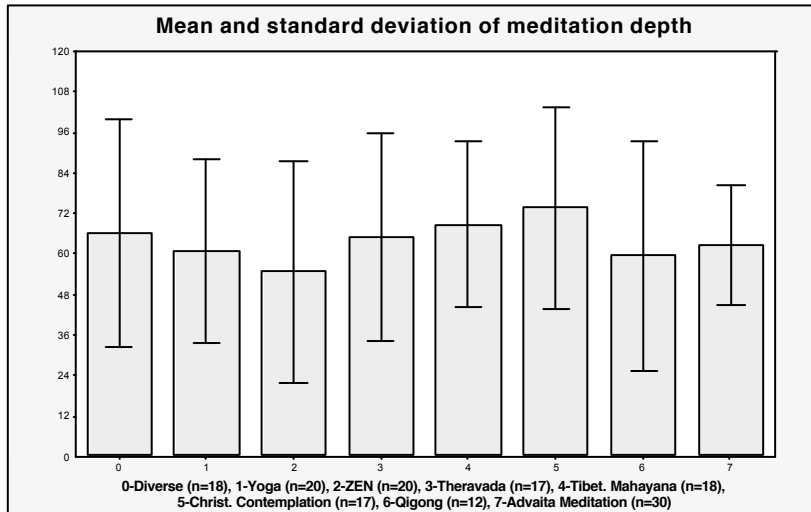
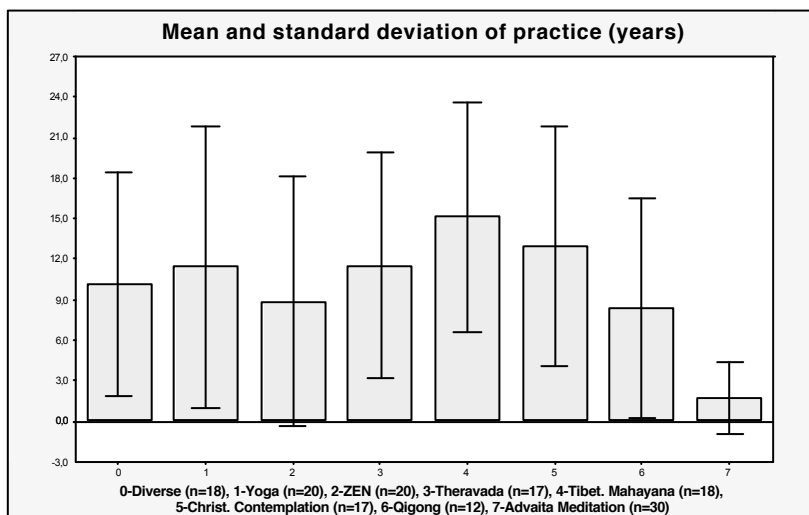
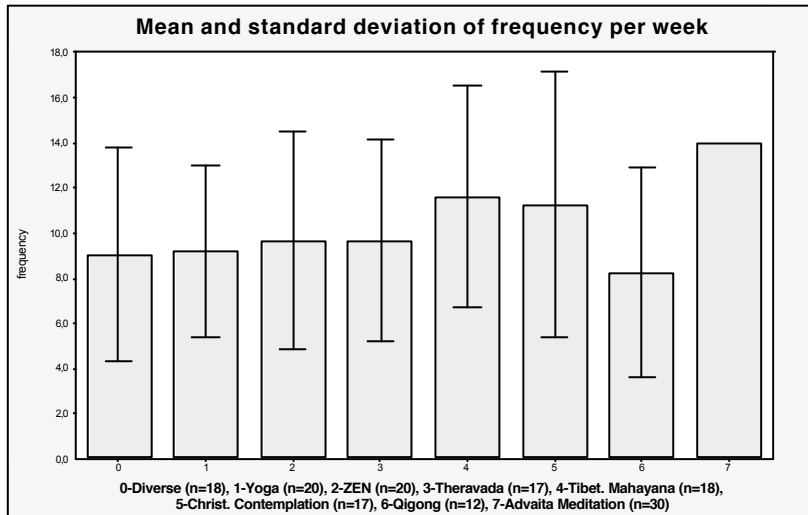


Diagram 17: Length of practice in years of the different meditation traditions



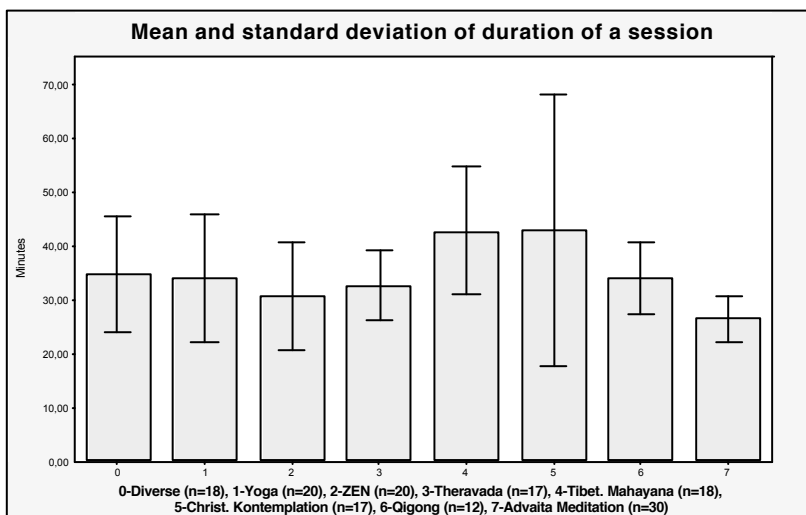
Computing ANOVA and Scheffé-tests for the frequency of meditations per week showed significant inhomogeneity between the groups, but the single differences between the Advaita Meditation group and group 6 (Qigong.  $p < .056$ ), group 0 (various techniques.  $p < .058$ ) and group 1 (Yoga.  $p < .056$ ) failed to reach the level of significance.

Diagram 18: Frequency of meditation practice per week of the different meditation traditions



Similarly, ANOVA and Scheffé-tests for the average duration of a meditation session were computed and the results exhibited highly significant inhomogeneity of the groups. Scheffé-tests showed significant differences between the means of groups 7 (Advaita Meditation) and groups 4 (Tibet. Mahayana) and 5 (Christian Contemplation). (Diagram 19).

Diagram 19: Average duration of session of the different meditation traditions



Excluding the Advaita Meditation group, homogeneity between groups 0 – 6 of the original sample was tested by ANOVA. The groups were homogeneous in “meditation depth”, “frequency of practice per week” and “length of practice in years”, but not in “duration of the single sessions” ( $p = .03$ ).

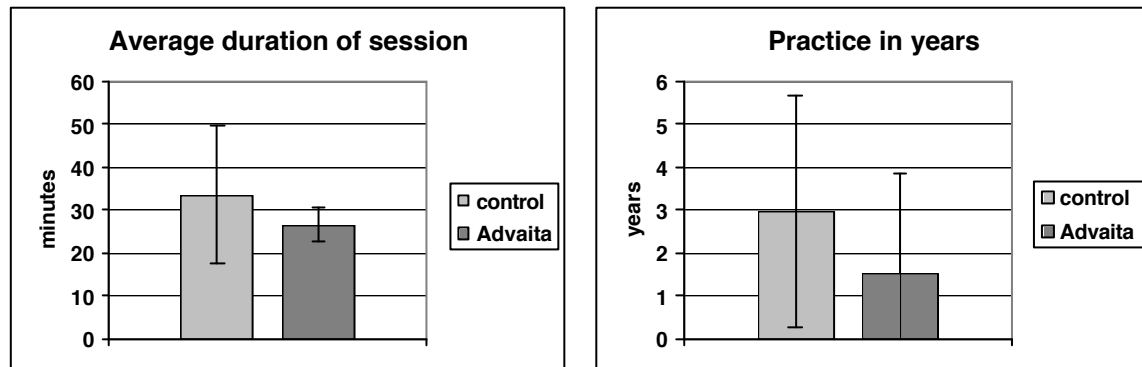


Considering the correlation between “meditation depth” and “years of practice” ( $r = .72$ ), “frequency per week” ( $r = .50$ ) and “average duration of session” ( $r = .26$ ) in the original sample, the comparability was obviously hampered predominantly by the differences in “length of practice in years”, as the correlation between “meditation depth” and “length of practice in years” was highest. As a consequence, the comparison between Advaita Meditation and the other groups had to be adjusted especially concerning “length of practice in years”. In order to increase the comparability, we set a filter condition limiting the duration of practice to 8 years. This excluded 68 subjects from the original sample, leaving 54 subjects and 1 from the Advaita Meditation group leaving 29 subjects.

Since homogeneity was assured for “meditation depth”, “frequency of practice” and “duration of practice in years”, but not for the average duration of the single session, and since the correlation between “depth” and “duration of a single session” was rather low, we combined the 54 subjects of the original sample’s seven meditation groups into one using it as a control group homogeneous in meditation depth, frequency and length of practice in years.

The difference between the practice (in years) of the Advaita Meditation group (mean = 1.52 years, median = 0.5 years, indicating 50% of the subjects meditating not longer than half a year) and the control group (mean = 2.97 years, median 2 years, indicating 50% of the subjects meditating not longer than 2 years) is still significant ( $p = .015$ ), the arithmetic mean being about twice (the median 4 times) as big in the control group. The difference between the average duration of the single session of the Advaita (33.5 minutes) and the control group (26.5 minutes) is highly significant ( $p = .004$ ,  $ES = .74$ ), indicating a significantly shorter meditation session in the Advaita group. This is mainly due to the relatively fixed length of session with the Advaita group, where a fixed duration of more or less 25 minutes is strongly recommended, which reduces the variability of the values in this group. No definite conclusion can be drawn concerning the relevance of this difference (roughly 7 minutes, but with considerable variance in the original sample), which does not seem to be of that much importance, especially if one takes into account the rather low correlation between depth and duration of session. Because of the higher correlation we would expect “length of practice in years” to be the most important variable to influence meditation depth.

Diagram 20: Average duration of session / Diagram 21: Practice in years



Considering meditation depth, the difference between the means and the distributions (standard-deviations) of the two groups was highly significant (both:  $p < .01$ ;  $ES_{\text{means}} = 1.04$ ). The Advaita group exhibited significantly greater depth compared to the control group and less variation of values around the mean. The average frequency of meditation per week in the Advaita group with a fixed number of 14 meditations was roughly twice as big compared with the control group with approximately seven sessions per week on an average. This might be of importance, as the correlation between frequency of sessions and depth of meditation is in the middle range. (see diagrams 22 and 23, next page)

Then we studied the different levels of depths in detail. ANOVA proved homogeneity of the mean values of the original sample's seven meditation groups for each of the five different levels of depth. Therefore, we used the seven groups combined into a control group in the same manner as before, excluding all meditators with more than 8 years of practice and tested the means of the Advaita group ( $n = 29$ ) against the corresponding values of the original sample ( $n = 54$ ) using this as a reference (control) group.

Diagram 22: Depth of Meditation / Diagram 23: Frequency of sessions per week

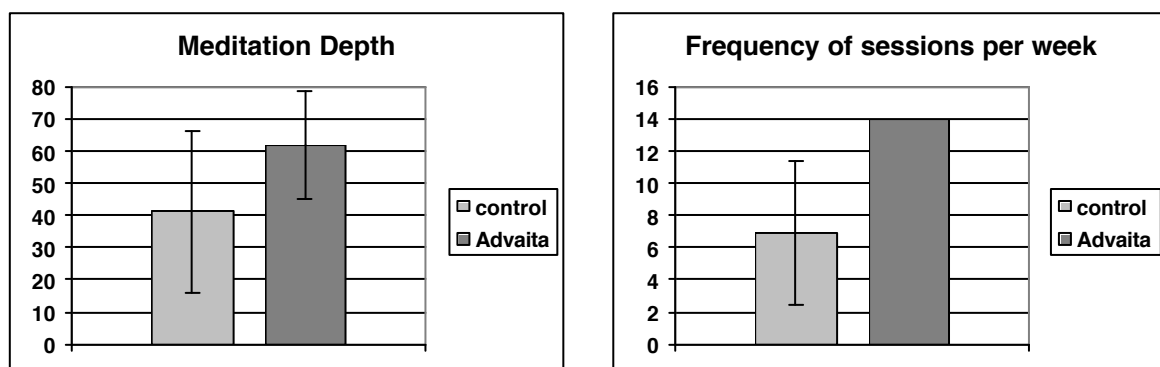
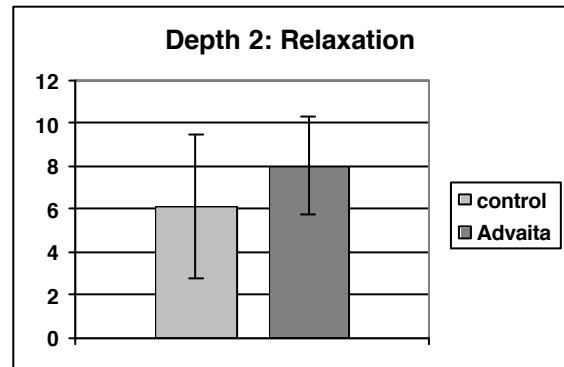
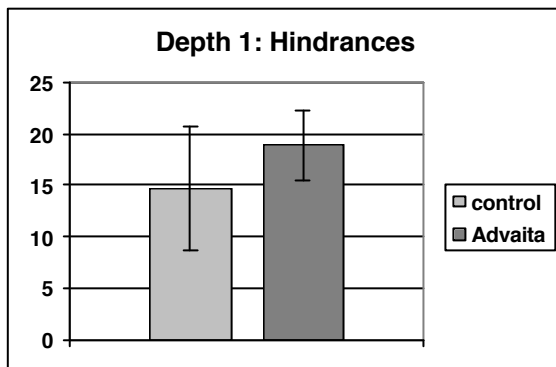


Diagram 24: Depth 1 – Hindrances / Diagram 25: Depth 2 – Relaxation



Advaita meditators scored significantly higher compared to the original sample on all depth levels. The effect sizes were  $ES = .91$  for level 1,  $ES = .71$  for level 2,  $ES = .47$  for level 3,  $ES = .66$  for level 4 and  $ES = 1.42$  for level 5.

Diagram 26: Depth 3 – Personal Self / Diagram 27: Depth 4 – Transpersonal qualities

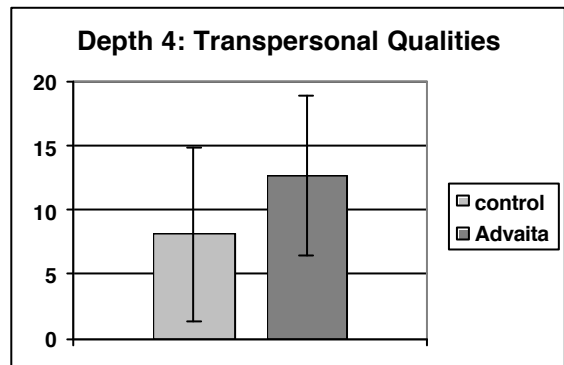
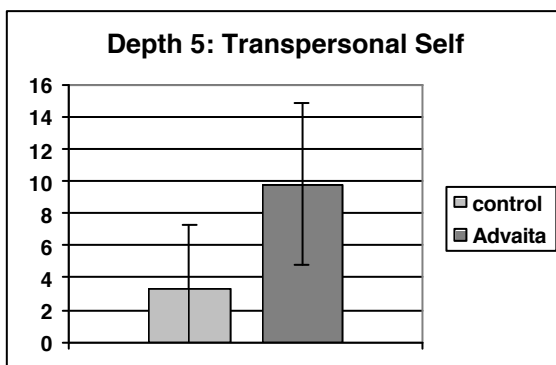


Diagram 28: Depth 5 – Transpersonal Self (Non-duality )



The F-Test of homogeneity of variance exhibited highly significant inhomogeneous distributions in depth levels 1 to 3, where the Advaita group exhibited a significantly smaller range of distribution of values around the mean. Ignoring the differences in length of practice in years and computing standard deviations for all eight meditation groups of the complete original sample ( $n = 122$ ) plus the Advaita group ( $n = 30$ ), the groups didn't exhibit significant inhomogeneity of distributions in any of the five depth levels. The variances were least with the Yoga, the Tibet. Mahayana and the Advaita Meditation group, the Advaita Meditation group exhibiting the least variation of values around the mean in all five levels except for level 2, where the Tibet. Mahayana group exhibited a slightly smaller standard deviation. The "various-group" ("diverse") displayed the greatest variability in depth levels 4 and 5 and the second greatest in level 1. In depth levels 1 to 3 it was the Qigong group which showed the greatest - in level 4 the second greatest - variations around the mean. The other groups were lying somewhere in between. Before analysing such data in more detail, a greater number of subjects for each of the different meditations should be available, considering that the numbers of subjects range at present from a minimum of 12 (Qigong) to a maximum of 20 (Yoga and ZEN).

For the sake of figurative comparability and imagination, we computed in a last step the equivalent figures of meditation length of the different meditative schools using the means of the Advaita Meditation group in general depth and in depth level 5 as reference values. For each meditation group exhibiting significant correlation between meditation depth and length of practice we computed the linear regression lines and linear regression equations, where we put in the means of general meditation depth (63.40) and depth level 5 (10.03) of the Advaita Meditation group to get the equivalent length of meditation practice for this given depth value in each of the other meditation groups. The results are given in Table 3. Non-significant values are given in brackets. In three cases (Tibet. Mahayana, Advaita Meditation) the regression lines were not very steep and the correlations not significant. The Tibet. Mahayana group started with rather high values of meditation depth as did the Advaita Meditation group. The Advaita Meditation group was rather homogeneous concerning the length of practice (s. above), there were no practitioners with a practice of more than 9 years and only 7 where the duration exceeded two years. The results must be considered with caution only and on an exploratory basis because of the rather small samples per meditation tradition, especially of the Qigong ( $n = 12$ ), the Theravada and Christ. Contemplation ( $n = 17$ ) and also the Various and the Tibet. Mahayana group ( $n = 18$ ).

Table 3: Equivalent values for the duration of meditation practice for mean general meditation depth (63.40) and mean depth in level 5 (10.03) of the Advaita Meditation group

Group	Equivalent duration of practice in years for:	
	General depth level	Depth level 5
Various	9.30	12.67
Yoga	12.61	19.93
ZEN	11.77	15.40
Theravada	10.96	15.41
Tibet. Mahayana	(8.81)	(25.58)
Christ. Kontemplation	8.80	12.47
Qigong	9.56	14.84
Original sample (n=122)	11.00	16.15
Advaita Meditation	1.77	(1.77)

## 6. Discussion

It should be mentioned here, that Piron in the construction of the MEDEQ deliberately excluded TM-practitioners and Osho-followers from his original sample of meditators during the construction procedure. “Modern schools like the Osho- or TM-movement should not be considered, because they don't fit in the category system of the main traditions and are characterized by ideologies that seem to be questionable in the eyes of the author.”

The test construction according to Piron was performed in co-operation with teachers of the main traditions (Zen, Tibetan Buddhism, Qigong, Yoga and Christian Contemplation) and with another 40 experts of different traditions (excluding Osho and TM-tradition) with a regular meditation practice of 19.7 years and of 10.2 years of teaching that technique. The sample included 9 authorised teachers of Christian Contemplation, 7 Zen-teachers, 6 teachers of Buddhist meditation in the Theravada-tradition, 5 of the Tibetan Vajrayana, 7 teachers of Qigong and 6 teachers of Yoga.

Although their length of practice in years was significantly and considerably shorter, the practitioners of Advaita Meditation in this study scored signifi-

cantly higher than more experienced meditators of other traditions and/or techniques on “general depth of meditation” and on all five sub-levels of the MEDEQ, especially on level five of maximum depth – “Transpersonal Self” or “non-duality”, where the difference was most prominent.

One explanation for the smaller variation of the individual values around the mean may be the narrower distribution of Advaita practitioners concerning the duration of practice in years. Most Advaita practitioners in this study were in the first years of their practice. But with regard to the depth obtained an additional explanation for the smaller variation could be less interference with other variables within the individual process of meditation. The main reason for this could presumably be seen in the methodological determination by a very simple, but rather defined meditation process leaving less chances for deviation. We assume that the methodological distinction and clarity of definition as to the meditative procedure seems to be most effective within the realm of Advaita Meditation, of Yoga – Meditation and of Tibet. Mahayana Meditation, whereas the great variability of values naturally would be expected within the “various”-group. Perhaps the rules for meditation governing the meditation procedures in the “various” and in the “Qigong” group are less pronounced and leave more space for individual interpretation, which results in rather good effects for some and rather poor for others.

The result may thus be an expression of more precise methodology concerning the set of procedures included in the techniques of Advaita Meditation, Yoga Meditation and Tibet. Mahayana Meditation, reducing the amount of individual variation of values and pinpointing to the reliability of the techniques as regards the effects. Especially in the first three levels of depth - in the field of coping hindrances, getting and retaining relaxation and staying focused – Advaita Meditation seems to be the most effective in the shortest time when compared to the other techniques. The mastering of these first three levels – coping hindrances, the accomplished state of relaxation and the ability to focus attention – usually is considered as an important prerequisite for experiencing the following deeper levels four and five of meditation.

What is of special interest, however, is the marked difference in level 5 “Non-Duality”. This the “realm” of Advaita Meditation, as the term “A - dvaita” actually means “not two”, that is non dual. The author of the MEDEQ called this the level of the “Transpersonal Self” according to Assagioli and described it as follows: “complete rest of thoughts, no differentiations, comparisons, and judgements anymore; unity of all; emptiness and infinity, of consciousness; subject/object-transcendence”.

The results seem to indicate that Advaita Meditation reaches this state in an unexpectedly shorter time of practice and to an unexpectedly higher extent compared to the other methods. We attribute the effectiveness of Advaita Meditation to the detailed outline for the meditative process (1), to the high frequency (per week) and regularity of practice (2) and to the way it is taught (3).

According to Piron (2001) the disappearance of things, phenomena, sensory impressions etc. results in the emptiness of consciousness, which by the two great Mahayana-Schools of Buddhism is stated to be the essential aspect of the Absolute Reality. “Emptiness” – so Piron adds – is not an exclusively Buddhist term. In the gospel of Thomas (vs. 61) it is said: “For this reason I say, if one is whole, one will be filled with light, but if one is divided, one will be filled with darkness.” If emptiness is experienced, there are no more boundaries – consciousness is unbounded. As a consequence, the consciousness expands and becomes infinite. If the consciousness of the experiencing subject disappears, so does the consciousness of the experiencer and the object, the knower and the known. Following the Advaita philosophy, Wilber called this highest state “Non-Duality”.

We conclude that *effortlessness* - meaning *simplicity* and *innocence* - *letting go* and *accepting/allowing* (instead of pushing, struggling, trying, concentrating etc.) seem to be important features in the practice of effective meditation and these points could be crucial because according to many traditions Turiya / Samadhi (pure consciousness) is “the most effortless and simple state” at all – nothing can be done to “produce it”, because it is a state of complete “non-doing”, devoid of or detached from action. According to Meister Eckhart “God is infinite in his simplicity and simple in his infinity. Therefore he is everywhere and is everywhere complete. God is in the innermost part of each and every thing.”

Effortlessness and simplicity here are reached by the technique of letting the mind experience finer levels of thinking and is the result of reducing (minimising) the mental activity (of personal experiencing), which eventually settles down and gives way for the experience of pure consciousness, a state without thought, described above in the introduction.

The principle of least effort was formulated by Zipf (1949) in his book on “Human Behavior and the Principle of Least Effort”. The principle denotes a law of economy, which is thought to govern (e.g. by compression) information processing in brains and nervous systems (perception, learning, thinking, neuro-muscular control etc.) as well as processes on different levels (physical, chemical, biological etc.) in nature.

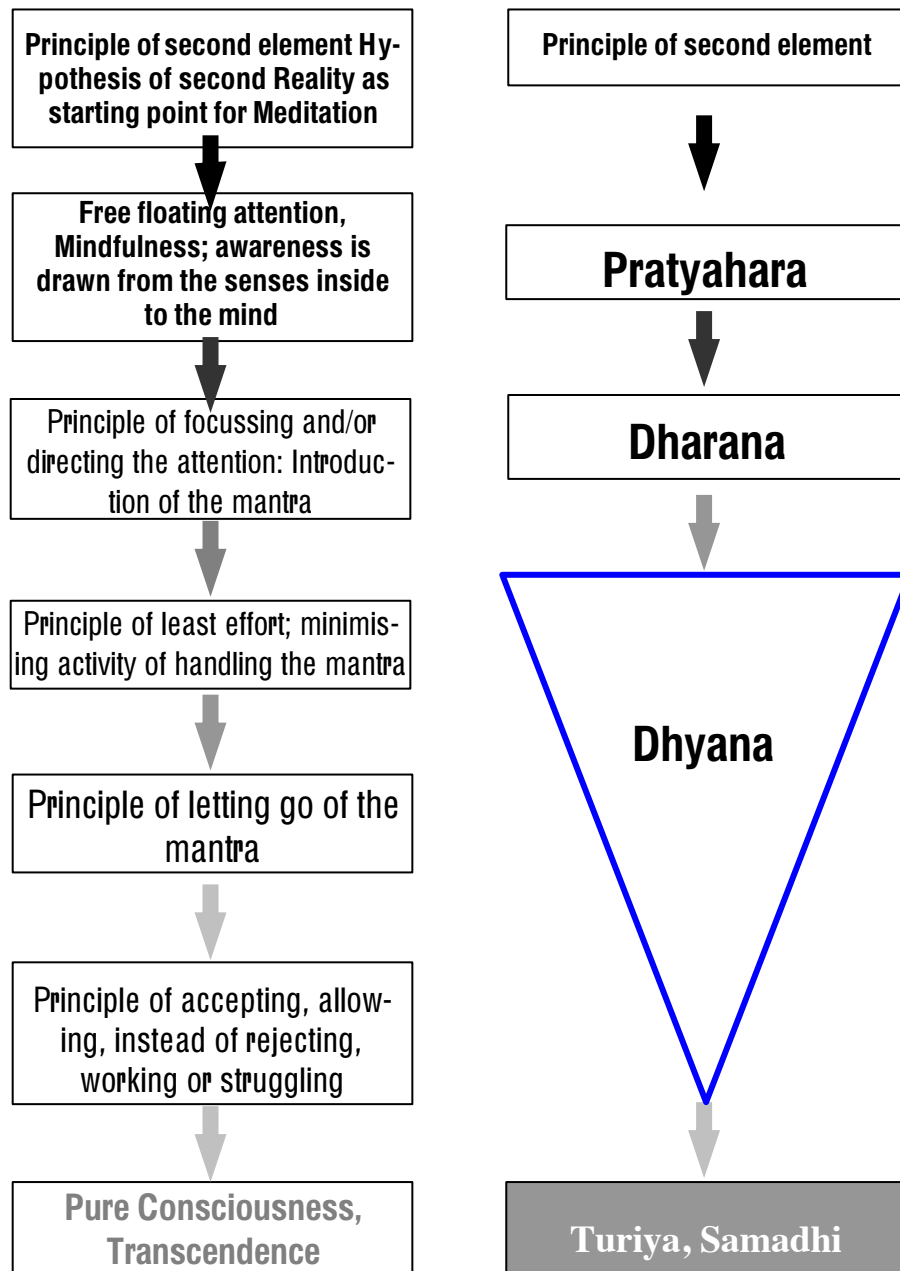
Only at first sight, it is surprising – and then meaningful – that a meditation procedure like this, driving mostly on the effortless side, does not at all mean reduction but rather promotion of concentration, as the results concerning depth level 3 clearly indicate. Concentration during meditation means effort, meditation itself leads to a state of higher composure and thus is favourable to the ability to concentrate and focus attention. Taking additionally into account Engel’s earlier cited results of the Advaita meditators least values in work and struggle and – at the same time – their highest values in support, security, unity and “non-material” levels of meditative development, we are inclined to relate these seemingly “contradictory” values to each other. As a consequence we understand that effort (work, struggle) does not belong to the Meditation practice *per se*, but to the aspect of personal development *on the path* - within the realm of inner and outer activity, especially yama and niyama. Effort, work and struggle do not pertain to the yoga-limbs samadhi, dhyana, dharana and pratyahara. As a suggestion, we would like to hypothesise, that the principles upholding the function of effective meditation – leaning on our preliminary results with Advaita Meditation - could be assorted approximately in the following way to the limbs of Yoga. (Figure 2)

It has to be kept in mind, however, that these results are restricted to culture (German) and that data from long-term practitioners of Advaita Meditation are still missing at present. For the other meditation groups, too, we would appreciate the expansion of the data base to a greater number of subjects.

With regard to the percentage of the Advaita practitioners still meditating after 5 and 10 years, the question may arise, why people stop meditating if it produces such good results. The answer is that, to a large extent, human behaviour is not governed by the laws of reason. This may also be seen with behavioural health risk factors such as smoking, consumption of alcohol or failing with beneficial routines, e. g. practising sports regularly or carrying out healthy nutrition consequently. People asked for the reason why they stop meditation mostly have answers pertaining to lack of time or temporary augmentation of stress in their life etc.



Figure 2: Correspondence between the structure of Yoga and features of the meditative process



The influence of a possible tendency of “faking good” cannot be estimated precisely. Within the sample of the test construction, Piron writes: “All persons of the sample showed common characteristics: They were meditators with a regular practice, were motivated to serve as test subjects and accepted this way of investigation. They seem to be rather motivated meditators than sceptics. Regarding these effects of selection, the result of factor analysis could also be interpreted as a characteristic of a very special biased group of meditators.” We have, therefore, no reason to believe that the tendency of social desirability – “the tendency of individuals to attribute to themselves, in terms of self-descriptive personality statements, those with desirable values and to reject those with undesirable values” (Therriault 1998) – within the group of Advaita-meditation practitioners should be significantly greater compared to Piron’s sample of “motivated meditators”. On the contrary, in our latest research we could ascertain a greater openness for practitioners of Advaita Meditation in the sense of a significantly reduced tendency of social desirability concerning the description of their own experiences (Fehr. 2002) compared to meditators initiated by the “TM-movement”. Also, the percentage of subjects with unacceptable high scores in social desirability among our practitioners of Advaita Meditation was considerably lower with respect to the statistically expected percentage.

The next steps for research could focus on a greater number of meditators from different traditions (1) and long-term practitioners of Advaita- and/or Transcendental Meditation (2). As Piron already pointed out, a detailed analysis of different meditation procedures could provide us with valuable knowledge as to what factors and procedures seem to be most conducive to the experience of deep meditation.

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