

# Restriction of Working Time as a Method in the Treatment of Procrastination

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## Keywords

Procrastination · Postponing · Work disorder · Intervention · Time limit · Working time restriction

## Summary

Procrastination (pathologically postponing work on important tasks) is a clinically relevant disorder of self control. Patients with this disorder do not complete personally relevant tasks in time or not at all, or only under extreme pressure. Common treatment approaches combine various elements from psycho-educative and cognitive-behavioral interventions. In contrast, we present an approach focusing mainly on restricting working time as a treatment method for procrastination. Patients are allowed to work *only during certain time windows* and *only for a set amount of time*. Only by increasing their working efficiency, i.e., by utilizing the previously allotted working time as efficiently as possible, can they earn more working time. Restricting the working time leads to a change of perspective from 'I *have to* study (continuously)' to 'I *am allowed to* study (right now)'. This short intervention of only 5 sessions can be delivered in a group setting or in an individual setting. Here, we will present its application within a group setting. An evaluation of restricting working time as a group intervention produced convincing effect sizes in the self-assessment instruments as well as with respect to daily study and working behavior assessed via an online working diary.

## Schlüsselwörter

Prokrastination · Aufschieben · Arbeitsstörung · Intervention · Zeitbegrenzung · Arbeitszeitrestriktion

## Zusammenfassung

Prokrastination (pathologisches Aufschieben) ist eine klinisch bedeutsame Störung der Selbststeuerung, bei der die Betroffenen persönlich wichtige Arbeiten nicht oder nicht rechtzeitig und nur unter großem Druck erledigen. In üblichen Behandlungsansätzen werden vielfältige psychoedukative und kognitiv-behaviorale Methoden verwendet. Alternativ dazu stellen wir hier die Arbeitszeitrestriktion als Methode zur Behandlung von Prokrastination vor: Patienten dürfen *nur zu bestimmten Zeiten* und *nur für eine begrenzte Dauer* arbeiten. Erst nach einer Erhöhung ihrer Arbeitseffizienz, d.h. durch eine möglichst gute Ausnutzung der zuvor geplanten Arbeitszeiten, können sie sich zusätzliche Arbeitszeit verdienen. Die Verknappung der Arbeitszeit bewirkt einen Perspektivwechsel von «Ich *muss* (eigentlich dauernd) lernen» zu «Ich *darf* (nur jetzt) lernen». Die kurze Intervention im Umfang von nur 5 Sitzungen ist sowohl im Gruppensetting als auch im Einzelsetting durchführbar; wir beschreiben hier die Anwendung im Gruppenformat. Die Evaluation der Arbeitszeitbegrenzung im Gruppensetting erbrachte überzeugende Effektstärken in den Selbstbeurteilungsinstrumenten und im täglich in einem Online-Arbeitstagebuch protokollierten Lern- und Arbeitsverhalten.

## Introduction

Procrastination (pathological postponement behavior) refers to the repeated and needless postponement beyond the appropriate time of actions that are necessary or considered to be important, although there had been enough time to accomplish them. Despite clinically relevant suffering and knowledge of the negative consequences, those who are affected continue the postponement. Both the thought of the postponed actions and the process of postponement itself cause discomfort [Höcker et al., 2008; Höcker et al., 2009; Rist et al., 2006]. Typically postponed activities include studying for a test, completion of tax returns, payment of bills, and writing scholarly papers. Those so affected substitute activities that allow immediate reinforcement and are less threatening or easier to manage [Boice, 1996; Rist et al., 2006]. Poor time management is typical of procrastinators; they prefer to work in the afternoon and the evening rather than the morning [Ferrari et al., 1997], and thus to do their tasks relatively late in the day.

Occasional postponement of aversive activities to a certain extent is widespread and can be regarded as normal [Schouwenburg, 2004]. Procrastination as a pathological form of postponement, however, is characterized by disproportionately elaborate mental preoccupation with the postponed action, and may lead to serious professional and personal impairments. The mixing of work and leisure time that often results creates a situation in which even positive activities are no longer experienced as pleasant, because of tension or a 'guilty conscience'. Students who procrastinate not only do less well on their tests and homework; they also suffer from increased stress and report more symptoms of illness than non-procrastinators [Beck et al., 2000; Tice and Baumeister, 1997]. There is also a clear correlation between procrastination and depression [Deters, 2006].

In several cross-sectional surveys that we conducted at the University of Münster ( $n > 3,500$ ), 7–14% of participating students had clinically significant scores for procrastination on the Aitken Procrastination Scale (APS) [Helmke and Schrader, 2000]: their scores were above the mean of students who had sought treatment for procrastination at our outpatient psychotherapy clinic [e.g., Höcker et al., 2008; Rist et al., 2006].

The literature describes various broadband programs on the treatment of procrastination [Boice, 1996; Ferrari et al., 1995; Schouwenburg et al., 2004]. These include varied, more or less problem-specific modules in various combinations, such as cognitive restructuring, relaxation, psycho-education, self-monitoring, stimulus control, goal setting, division of tasks according to importance and urgency, formulating work schedules, focusing on one's own biorhythms, time management, determination of sub-steps for the implementation of projects, and causal analysis. There have been methodological problems in many of the relevant intervention studies, such as

simultaneous use of other psychotherapeutic methods by the subjects, small sample size, or selection of dependent variables that are not very meaningful [Ferrari et al., 1995; Pychyl and Binder, 2004; van Eerden, 2003; van Horebeek et al., 2004].

Therefore at the University of Münster, short behavioral therapeutic modules were developed and evaluated in recent years, focusing on just 2 core problems of procrastination: slowness to begin and unrealistic planning [Beißner, 2004; Höcker et al., 2008; Höcker et al., 2009; Samberg, 2004]. The additional intervention approach presented here also concentrates on key aspects of procrastination: the postponement of important actions to a later point in time and the ineffective use of the working time that is currently available.

Postponement may be described using the concepts 'cross-sectional competition' and 'longitudinal competition' [Kuhl and Beckmann, 1994]. Cross-sectional competition means that at the opportunity to initiate an action, i.e., at the moment of execution, the intent must prevail against the other activities that could be done at the same time. Longitudinal competition, on the other hand, describes the competition of different points of time, over a longer period, at which a particular activity can be performed. The resulting behavior follows the principle of 'time discounting', according to which costs that emerge later (feelings of stress, time pressure), as well as possibly greater benefits (passing a test, good performance), are devalued in favor of an immediate benefit (diversion, relaxation, distraction from threatening demands) [König and Kleinmann, 2004].

The procrastinator's behavior may be plausibly described by both of these concepts as reduced resistance to competing activities and opportunities. If the patient intends to begin the work here and now, many possible later opportunities are also competing with that intent. This makes it easier for him to give in to immediate, alternative activities that are less stressful and 'critical to self-worth', which are in cross-sectional competition with the really important work to be performed.

A treatment oriented to this concept must therefore try to increase the volitional capacity for control, by strengthening the relevant intention with regard to longitudinal and cross-sectional competition. The effects of cross-sectional competition could be reduced if an opportunity intention were formed [Gollwitzer, 1999], by which the patients shield themselves from current, more attractive, alternative activities. This principle has already been implemented in the 'Start on Time' intervention module [Höcker et al., 2008; Höcker et al., 2009]. To reduce longitudinal competition, however, a planned starting time must be made conspicuously preferable to other possible times, so that later times on the same day are absolutely precluded for this activity. The intervention approach by restriction of working time presented here follows this principle.

It also concentrates on the less efficient use of working time. The patients often report that they spend long periods of time, interrupted by many distractions and alternative

activities, trying to finally concentrate on the really important work [Glöckner-Rist et al., 2010]. The proportion of concentrated working time out of the total time is therefore negligible. The intervention described here, using the principle of scarcity of working time, should therefore also assist the patients to use their time effectively.

Because of blocked task-performance and time pressure, procrastinators often make extravagant plans and spend a great deal of time with an agonized conscience, thinking about the work that is not getting done and blaming themselves. By restricting the work opportunities and working time of procrastinators, we hope to bring about, in addition to a change in work behavior, a considerable change in this miserable state of mind: the ratio between the total time spent thinking about work and the actual working time should be shifted so that patients can clearly differentiate between unencumbered spare time and concentrated working time.

The psychological impact of the proposed reorganization of the working day can be explained by reactance theory [Miron and Brehm, 2006]. Reactance occurs when a person perceives a threat to his freedom in an area in which he previously believed himself free to decide or to act; it signifies resistance to a prescribed, reduced decision-making capability, by preference for the alternative that is being withheld. Studies of consumer behavior show that the scarcity of a commodity increases its subjective attractiveness [Cialdini, 1995; Wann et al., 2004; Mittone and Savadori, 2009]. Not only preferences for comparatively unimportant consumer goods, but even complex psychological processes are influenced in this way by the restriction of access. Driscoll et al. [1972] give the name 'Romeo and Juliet effect' to the intensification of feelings of love in a relationship that is rejected by the parents. This increasing attractiveness of that which is scarce should also apply to the restriction of the unlimited possible alternative starting points in longitudinal competition and the limitation to a fixed time period of what was at first an unlimited duration of work.

According to reactance theory, a restriction of possible choices means that those affected will try to defend their endangered freedom and possibly restore it. The intervention presented here takes advantage of this motivation. The times during which work is allowed to be done may be extended, but only if the patient makes effective use of the time already available. Instead of repeatedly promising themselves that 'tomorrow I really will' work especially long hours and catch up with the backlog of the past weeks, this intervention compels those affected to take their intentions seriously and thus to act realistically. They learn through this reductionist arrangement of their working time and goals to change their perspective: they are 'allowed to' work only at certain times, rather than feeling subjectively that they 'have to' work all the time. Only by improving their work efficiency, i.e., by utilizing the previously allotted working time as efficiently as possible, can the participants 'earn' more time to work.

An example of the clinical application of the principle of time restriction is the method of sleep restriction described by Müller and Paterok [1999], which is used to treat non-organic insomnia. Patients whose sleeping/waking time structure is often vague and disorganized learn shortened and clearly defined 'lying in bed times' that are to be used exclusively for sleeping, and may only be increased bit by bit if the patients are successful. The motivational psychology baseline for sleep disorders differs, of course, in many respects from that in procrastination, but some of the individual techniques described by these authors have proved to be stimulating and useful in the practical design of our module for restriction of working time – especially the determination of time windows based on the 'sleep efficiency' achieved.

### **The Intervention Procedure**

The intervention module was developed and first used at the specialized outpatient clinic for procrastination at the Department of Psychology of the University of Münster [Jaensch, 2007; Krumm, 2007; Nieroba, 2006; Wildt, 2006]. It can be performed in both an individual and a group setting and includes 5 weekly sessions, lasting 50 or 90 min, depending on the situation. The main component is instruction in the method of restriction of working time for a personal work project, adding 2 brief psycho-educational components.

On the basis of 1 week of online self-monitoring before the first session, and thus depending on the actual working hours, fixed time windows are set within which the patient is permitted to work, with a beginning and end point, for the coming week. Work is prohibited outside these individual 'working time windows'.

In the first session, the subjects promise to limit their working time to their designated time window and not to change this unless their actual work efficiency changes. In sessions 2–4 of the intervention, reconfiguration of the restriction on working time – especially the calculation and adjustment of the time windows – is a central component. Since the progressive routine means that participants require less and less clinical support and time, sessions 3 and 4 use the remaining time for short psycho-educational units on management of the condition.

The following concretely describes the practical approach to restriction of working time. Details of the individual sessions can be found in the accompanying tables.

### **Approach to Restriction of Working Time**

A 1-week daily log of working behavior in the Münster Work Diary [Arbeitsgruppe Prokrastination, 2010], starting a week before the first session, serves as the basis to set the participants' individual working time windows. This approach is

**Tab. 1.** Procedure, sessions 1 and 2

Duration, min (approximately)	Overview	Contents
<i>Session 1</i>		
15	Welcome and organization	introductions; overview of training program; overview of session content
20	Description of symptoms	description of individual procrastination symptoms of the participants by means of key questions
25	Introduction of time restriction as a method	approach by thought experiment; time restriction as a method (presentation and discussion)
25	First group application of restriction of working time	calculation of individual daily working time (working time per workday) from self-monitoring phase; creation of personal weekly schedule: planning of 2 time windows for working per workday; instruction: starting today, log 2 work units per day
5	Conclusion	determination of an individual goal for each participant for the coming week
<i>Session 2</i>		
5	Welcome and overview	welcome; overview of session content
35	Evaluation of restriction of working time in the past week	how realistic were the times and duration of the time windows? what was the effect of establishing a working time window? discussion, evaluation, and assistance
35	Reconfiguration of restriction of working time	calculation of individual work efficiency; determining new working time windows; creation of weekly schedule
10	Conclusion	determination of an individual goal for each participant for the coming week

intended to ensure that realistic time allotments are chosen for the first week of training.

Session 1 introduces the module of time restriction and provides theoretical background. Then the group members calculate their average working hours per day (e.g., 90 min), on the basis of their work log from the previous week. This establishes the maximum working hours per day in the week after the first session; they are not allowed to be exceeded. Participants are free to decide how they want to distribute this working time between the 2 daily time windows in the coming week. The size of the time windows remains constant throughout the week unless a participant achieves 100% work efficiency in 1 day. In that case, he may increase his working time on the next day by 20 min. Following the calculation, the participants record their obligatory time windows on a weekly schedule, with both the beginning and the end points being obligatory. Before and after those times, working or studying is prohibited. The beginning of the time window may vary from day to day, but it must be established beforehand in the weekly schedule. Participants must schedule 2 days off per week.

The minimum size of a time window is 20 min, even if a participant has not yet worked at all in the past week. The planned total working hours per day must be strictly divided into 2 time windows. These should not be directly sequential, to give the participants a second chance if the first unit did not go as planned.

Starting with session 2, the duration of the time window is determined by the work efficiency of the previous week. This is calculated using the log of the previous week and reflects the percentage ratio of actual to planned working time:

Work efficiency = actual work hours/planned work hours × 100%.

An example:

Biology student P. had planned study periods from 10:00 to 11:00 a.m. and 3:00 to 4:00 p.m. The actual study time was from 10:30 to 11 a.m. and 3:00 to 4:00 p.m. Thus the work efficiency is calculated as:  $1.5 \text{ h} (= \text{actual study time}) / 2 \text{ h} (= \text{planned study time}) \times 100\% = 75\%$ .

A studying or working efficiency of 100% means that the actual study time exactly matches the specified time window for 1 day. The method assumes that the restriction to the previously determined working time is strictly adhered to. Precisely regulated short breaks are part of the work process during longer time windows and – unlike unregulated, unplanned breaks – are not considered an interruption of the calculated schedule.

Depending on the degree of work efficiency, in each session the duration of the time window may be increased for the following week:

- With a work efficiency below 51%, no increase in working time is allowed.
- With a work efficiency between 51 and 75%, working hours per day will be increased by 25% in the coming week.
- With a work efficiency of 76–100%, working hours per day will be increased by 50%.

In the first week of training, Mr. P. achieved an overall work efficiency of 75% and at session 2 was permitted to increase his working hours of  $2 \times 60 \text{ min}$  by 25%, thus by a maximum of 30 min. He decides to plan 1 study window of 60 min and another of 90 min for the coming week.

If a participant achieves an efficiency of 100% in 1 day, he can independently, outside the session, increase his planned working time once by 20 min on the following day. The participants may also, of course, decide at any time not to increase their working hours.

**Tab. 2.** Procedure, sessions 3 and 4

Duration, min (approximately)	Overview	Contents
<i>Session 3</i>		
5	Welcome and overview	welcome; overview of session content
25	Evaluation of the past week	progress, difficulties
25	Reconfiguration of restriction of working time	calculation of individual work efficiency; determining the new working time windows; creation of weekly schedule
30	Psycho-education I: condition management	topic of self-enhancement: self-reward questionnaire; definition: how can I reward myself? Reminders for rewards
5	Conclusion	determination of an individual goal for each participant for the coming week
<i>Session 4</i>		
5	Welcome and overview	welcome; overview of session content
15	Evaluation of experience in the past week	progress, difficulties
20	Reconfiguration of restriction of working time	calculation of work efficiency; determining new working time windows; creation of weekly schedule
35	Psycho-education II: condition management	psycho-education: workplace design and coping with disruptions
5	Conclusion	determination of an individual goal for each participant for the coming week

On day 1 of week 2, Mr. P. has precisely adhered to his study plan and achieved a work efficiency of 100%. He may therefore increase his study time for the next day by 20 min. But he declined that option, since he had already decided at the session to increase his study time by 30 min; he kept his study time windows at 60 and 90 min. In week 3, he achieves a work efficiency of 90%, and therefore may increase it by an additional 75 min to 225 min; for week 4 he plans to have 1 time window of 120 min at first and then 1 of 'only' 90 min. On day 2, with 100% efficiency, however, he increases first the one and then the other window by 20 min each, so that at the end of the week the total time is 250 min per day (with 85% efficiency). For week 5, he raises it again by a total of 90 min to a total of 340 min of daily working time (1 × 180 min and 1 × 160 min, with precisely regulated breaks) and achieves a weekly efficiency of 90%. After the end of the training program he wants to maintain this working time.

Table 1 shows the procedure for sessions 1 and 2.

### Additional Psycho-Educational Elements

In sessions 3 and 4, in addition to exchanging experiences and continuing the intervention for restriction of time – rather noncommittal – information is provided about contingency management. This includes self-reward, workplace design, and coping with disruptions. With the introduction of the topic of 'self-reinforcement,' participants are told how they can use reinforcements to regulate their own behavior. On the basis of a questionnaire for self-reinforcement, they are encouraged to discuss how they have rewarded themselves up to now, which reinforcements are suitable for study and work phases, and which they can imagine themselves using.

The psycho-educational part of session 4 relates to the topics of 'workplace design' and 'coping with disruptions.' Using a checklist, criteria are discussed for beneficial work-

place design [Arbeitsgruppe Prokrastination, 2010]. Then the participants exchange views, moderated by the trainer, on which disruptions they are familiar with. These are sorted into internal disruptions (e.g., fatigue, hunger, worry) and external disruptions (e.g., telephone calls, visits, noise, distractions from television, radio). Then individual proposals for dealing with disruptions are compiled (e.g., changing workplaces, putting a 'do-not-disturb' sign on the door, setting the telephone to 'mute,' relegating sources of distraction to another room). Table 2 shows the procedure of sessions 3 and 4.

In session 5, the closing session, the contents of the training program are summarized and the progress of the participants is evaluated. There is a prophylactic discussion of how they can prevent themselves from falling back into old patterns. Possible obstacles to continued success are compiled and solutions to common problems are worked out. For the procedure of the closing session see table 3.

### Experience to Date

The intervention has been conducted since 2006 at the outpatient clinic of the University of Münster in the form described above. The efficacy of the method was tested on 85 student participants who were informed about the procedure and consented to it. The research plan was approved by the local ethics committee (Department 07, University of Münster). There was a pre-post comparison using questionnaires on state- and trait-procrastination, as well as logs of daily working behavior.

Postponement was reduced significantly according to both the self-assessment measures and the daily logs of work behavior. On our primary outcome measure, the subscale Cen-

**Tab. 3.** Procedure, session 5

Duration, min (approximately)	Overview	Contents
<i>Session 5</i>		
5	Welcome and overview	welcome; overview of session content
15	Evaluation of experience in the past week	how did the implementation of your project work out (note card)? have you changed anything in your workplace design? If so, what?
10	Reconfiguration of restriction of working time	calculation of work efficiency; determining the new working time windows; filling out weekly schedule at home
45	Preventing and managing difficulties in the future	summary and review of the training program: how can progress be sustained? What obstacles might arise in the future? Discussion and approaches to problems
10	Evaluation of the training program	reciprocal feedback

tral State Procrastination of the Academic Procrastination State Inventory (APSI) [Helmke and Schrader, 2000; Patzelt and Opitz, 2005b], we found in pre-post comparison an effect size of 2.24. On the Central Procrastination subscale of the APS [Patzelt and Opitz, 2005a], there was an effect size of 1.30. The effect sizes for use of a working diary of behavior-oriented recorded measurements of ‘postponement in minutes’ (1.04), ‘learning efficiency’ (1.55), and ‘number of realized study days’ (0.95) are very good. Calculation of the effect size used the formula recommended by Maier-Riehle and Zwingmann [2000],  $d = (M_{pre} - M_{post})/SD_{pre}$ . Informal feedback from those affected was also very positive. Further results will be reported in detail in a separate publication [Höcker et al., 2012].

## Discussion

This article describes an intervention for the reduction of procrastination by the method of restriction of working time. The brevity of the intervention allows for its implementation as a procrastination-specific module within a more comprehensive treatment for both work disorders and other mental disorders. The intervention is not indicated, however, if those affected are under great time pressure and are looking for very short-term help before exams or other deadlines. If less

than 6 weeks remain before the exam or completion of the task, it is usually not possible to establish the required working time. In this case, other interventions are offered, such as the ‘Start on Time’ and ‘Realistic Plan’ modules from our working group’s proposed cognitive-behavioral therapy program [for the approach see Höcker et al., 2009].

Unlike Lopez and Wambach [1982], who advise patients to procrastinate for at least 0.5 h per day, the method presented here is not a paradoxical intervention. The method of restriction of working time can only work if the participants are compliant and adhere strictly to the agreed limits. The effect of the paradoxical instruction by Lopez and Wambach [1982] is indeed also based on the above-mentioned reactance principle, in that it ‘threatens’ freedom of choice. However, this limitation of choice is considerably less than that in our systematic approach, so that less effort is also expected to restore the previously perceived freedom.

The intervention described here is more effective than other empirically sound interventions to reduce postponement behavior described in the literature [see Schouwenburg et al., 2004; Höcker et al., 2012].

## Disclosure Statement

None of the authors have conflicts of interest.

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