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# Early night-time-bracing – an alternative in AIS management

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## Introduction

As a result of physical and psychological stress we often find very weak compliance for traditional Scoliosis Full-Time-Bracing (FTB) in comparison to Night-Time-Bracing (NTB) [1]. The investigation tries to find out whether or not Early Night-Time-Bracing (ENTB, 16-25 COBB) can effectively stop AIS progression and prevent Full-Time-Bracing.

## Material and methods

Out of 671 AIS brace-patients we selected the ENTB-patients. Out of them we excluded patients with further diseases, patients who moved, patients with very high reaching thorathic curves and patients with follow-up's of less than 3 years. That left us with a small group of 20 patients with initial COBB angles 16-25°, all treated in one institution with a Dresdner NTB, without further treatment, with an average age of 11.6 years at brace discontinuation and an average follow-up of 5 years (3.1 - 7.8). Treatment was considered successful if there was improvement or at least 5° progression of primary curve and no progression (neither primary nor secondary curve) above absolute value of 25° COBB.

## Results

We obtained primary correction of 87.8%. After an average of 5.2 years (3.1 - 7.8) we found "true correction" (upright, standing position without wearing the brace) of 24.4% for primary curve and 12.2% for secondary curve. All in all we obtained a success rate of 85% (improvement or constancy).

We could suspend treatment in 4 cases before Risser 4 because of single-digit COBB-angles after an average of 1.9 years (1.1 – 3.4). We had to complete the treatment to Full-Time for 3 patients (15%) because after longer

periods of NTB their COBB-angles got worse and crossed the 25° COBB-mark. They nonetheless had comfortable Part-Time-Bracing times of an average of 4.6 years (2.3 – 6.6). Their progression could be stopped by FTB. No one passed the 30° COBB-mark and no surgery was needed.

## Discussion

93.8% of our patients feel their QOL has been affected by a brace [1]. 91.4% of full-time treated patients identified daytime as the most frustrating time [1]. Accordingly, ENTB of moderate curvatures (16-25°) seems to be the bracing method with the lowest physical and psychological impact, combined with a low risk of over-treatment (daytime life without any restrictions, possibility to suspend the night-treatment if scoliosis decreases significantly). ENTB shows an excellent success rate (85%). It even has an obvious option for the 15% failures (change to FTB) and is still beneficial for these patients, because it also enlarges their period of living without a brace during the daytime. AIS patients with initial COBB-angles > 25° have not been included in the investigation.

## Conclusion

ENTB of moderate curvatures is a sufficient method to stop AIS progression and to avoid FTB. It should become an integral part of AIS therapy in between only physiotherapy and Full-Time-Bracing.

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## Reference

1. Andreas Selle, Jens Seifert, Carl Gustav Carus: Compliance comparison of different bracing concepts. *Scoliosis* 2010, **5**(Suppl 1):O59.

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