

Second Edition

GOAL ATTAINMENT SCALING:

**Description, Utility, and Applications
in Pediatric Therapy Services**

**Resource Book/
Training Manual**

Thames Valley  Children's Centre



Second Edition

GOAL ATTAINMENT SCALING:

Description, Utility, and Applications in Pediatric Therapy Services

Prepared By:

Janette McDougall, Ph.D.

Research Associate, Thames Valley Children's Centre,
London, Ontario

Tel: 519-685-8680, ext. 53377

Email: Janette.McDougall@tvcc.on.ca

Gillian King, Ph.D.

Research Scientist, Child and Parent Resource Institute,
London, Ontario

Tel: 519-858-2774, ext. 2912

Email: kinggi@ontario.ca

© 2007 McDougall & King



Preface

Goal Attainment Scaling (GAS) is becoming an increasingly popular technique for evaluating the functional goal attainment of children receiving pediatric therapy services. This manual is intended as a resource for clinicians, administrators, and researchers who would like to use GAS to monitor change over time for individual clients and/or to evaluate the effectiveness of programs and services.

The authors of this manual have provided training to small and large groups of clinicians seeking to use GAS for clinical purposes. The authors have also conducted program evaluation studies of pediatric therapy services using this individualized measurement approach.

We hope that the information provided here will be helpful to you when using GAS. We also invite you to contact us at Thames Valley Children's Centre, tel: 519-685-8680, ext. 53377, or by email: research@tvcc.on.ca, if you require further information.

Janette McDougall

Research Associate

Thames Valley Children's Centre

TABLE OF CONTENTS

Brief History of Goal Attainment Scaling (GAS).....	1
Use of GAS in Pediatric Therapy Services.....	1
Description of GAS	4
Merits of GAS.....	5
Potential Limitations of GAS	6
Guidelines for Using GAS	7
Number of Goals to Set	7
Determining Who Sets Goals	7
Minimizing Bias in Goal Setting	8
Criteria for Writing Goals in GAS Format.....	9
Rating Goals After Intervention	11
Demonstrating the Reliability of the GAS Rating Procedure	12
Using GAS for Program Evaluation	13
Appendix A - GAS Training Procedures	14
Appendix B - Common Errors in Writing GAS Scales	15
Appendix C - GAS Checklist.....	18
Appendix D - Examples of GAS Scales in Pediatric Therapy	19
References.....	28

Goal Attainment Scaling (GAS)

Brief History

- GAS was first developed by Kiresuk & Sherman (1968) and used to evaluate mental health programs
- In 1969, the National Institute of Mental Health provided funding to develop, implement, and disseminate GAS
- GAS has since been used in evaluating service delivery in many fields (e.g., rehabilitation, education, medicine, corrections, nursing, and social work)
- Kiresuk et al. (1994) have written a book which serves as both a user manual and reference work for GAS

Use of GAS in Pediatric Therapy Services

- GAS has been used in several studies of the effects of pediatric therapy services for children with developmental, physical, and communication needs (e.g., Brown, Effgen, & Palisano, 1998; Ekström, Johansson, Granat, & Carlberg, 2005; King et al., 1998; King, McDougall, Tucker et al., 1999; Palisano, Haley, & Brown, 1992; Palisano, 1993; Steenbeek, Meester-Delver, Becher, & Lankhorst, 2005; Stephens & Haley, 1991)

Brown et al. (1998)

- Examined the effects of physical therapy intervention on attaining gross motor goals in 24 individuals aged 3 to 30 years with severely limited physical and cognitive abilities
- GAS was used to measure change in gross motor ability after 18 weeks of twice-weekly therapy intervention
- 3 goals were set for each participant, with one goal randomly selected as a control goal
- Participants' improvement on goals was assessed during therapy, recess and at home
- GAS indicated that participants demonstrated improvement during therapy, which did not consistently transfer to the recess and home settings
- Participants showed greater improvement on treatment goals than on control goals during therapy, but there were no differences between treatment and control goals during recess and at home

Ekström et al. (2005)

- Evaluated functional training for children with cerebral palsy using GAS
- The intervention was carried out in the context of natural settings
- 14 children aged 6 months to 6 years participated in the 5-month intervention
- 77% of goals were attained

King et al. (1998)

- One objective of this feasibility study was to examine the utility of GAS for evaluating therapy services provided to children with special needs in the regular school setting
- 16 children receiving an average of 13 therapy sessions over 4 to 5 months had 1 to 3 functional goals set in one of 3 target areas: communication, productivity, or mobility
- Findings showed that all children made improvements on their goals
- Study concluded GAS was a responsive measure of children's functional change in the 3 target areas and was appropriate for evaluating therapy outcomes in the school setting

King, McDougall, Tucker et al. (1999)

- One objective of this program evaluation study was to use GAS to measure the extent to which children with special needs achieved their individual, functional goals in the school setting
- 50 children received an average of 17 therapy sessions throughout the school year
- Each child worked toward 1 to 2 goals set in one of the following target areas: communication, productivity, or mobility
- Findings showed that 98% of the children made improvement on their functional goals after receiving intervention, and maintained that improvement 5 to 6 months later

Palisano et al. (1992)

- Tested sensitivity of GAS to measure change and involved 65 infants 3 to 30 months old with motor delays as measured by the Peabody Developmental Motor Scales (PDMS)
- Therapists set 2 motor goals per infant prior to a 6 month intervention period
- Findings showed that the infants scored higher than expected at the end of intervention
- Study results support the validity of GAS as a responsive measure of motor change in infants with motor delays

Palisano (1993)

- Study examined the validity and responsiveness of GAS; GAS was compared to the PDMS
- 2 goals were set for 2 consecutive 3 month periods for 21 infants with motor delay
- Study results support the content validity and the responsiveness of GAS, and provide evidence that GAS and the PDMS measure different aspects of motor development

Steenbeek et al. (2005)

- Evaluated the effect of botulinum toxin type A treatment for children with cerebral palsy using GAS
- 11 children participated in the study
- Goals were recorded weekly for 14 weeks
- 9 of 11 children showed significant improvement on their goals

Stephens & Haley (1991)

- Study investigated the validity and sensitivity to change of the PDMS and GAS
- 54 children 0 to 3 years old and enrolled in early intervention programs were included
- 1 to 2 goals were set for each child prior to a 6 month therapy period
- PDMS and GAS correlations were low (Stevens and Haley suggest that GAS should not be highly correlated with developmental tests that apply the same standard to everyone)
- Study concluded that GAS can be used to complement the results of standardized motor assessment (if using GAS alone, interpret with caution)

Description of GAS

- GAS is an individualized, criterion-referenced measure of change [see King, McDougall, Palisano, Gritzan, & Tucker (1999) for a detailed description of GAS]
- GAS involves defining a set of unique goals for a client, and then specifying a range of outcomes, which reflect concrete activities
- Kiresuk et al. (1994) strongly encourage the use of scales consisting of five levels of attainment, represented by scores ranging from -2 to +2

GAS 5-Point Rating Scale	
Score	Predicted Attainment
-2	Much less than expected outcome
-1	Less than expected outcome
0	Expected outcome after intervention
+1	Greater than expected outcome
+2	Much greater than expected outcome

Merits of GAS

- GAS is criterion-referenced, rather than norm-referenced, making it responsive to minimal clinically significant changes
- Useful for measuring individual goals
- Useful for evaluating functional goals
- Goals can be written for all levels of functional difficulty identified by the International Classification of Functioning, Disability, and Health (World Health Organization, 2001) (i.e., impairment, activity limitation, participation restriction)
- Promotes cooperative goal setting
- Reflects a client-centred perspective to service delivery
- Yields a numeric score for analysing group performance

Potential Benefits

- Improved conceptualization and delivery of intervention
- Improved clarity of therapy objectives for therapists and clients
- Realistic client and therapist expectations of therapy
- Increased client satisfaction
- Increased motivation of the client toward improvement, provided by the very existence of the goals

Potential Limitations of GAS

- Reliability \pm The reliability of a therapist's judgement of the impact of intervention
- Validity \pm Whether the GAS procedure is measuring what purports to measure (GAS has been criticized as being a way for therapists to set easy goals that are not clinically relevant)

Ways to Improve Reliability

- Involve experienced therapists (at least one year of experience in program)
- Provide comprehensive training in GAS to therapists (see page 14)
- Ensure goals are well-written
- Use independent raters (i.e., raters who do not have a personal investment in outcome score) and provide training to raters

Ways to Improve Validity

- Kiresuk et al. (1994) strongly urge that GAS be supplemented with measures that provide more defensible estimates of post-treatment status (i.e., standardized measures) to provide a comprehensive assessment of outcome
- Employ randomly selected control goals (after Brown et al., 1998)

Guidelines for Using GAS

Number of Goals to Set

- Available resources, including time, will influence the number of goals set for a client within a certain intervention period
- For psychometric reasons, Kiresuk et al. (1994) recommend setting at least three goals per client
- For practical reasons, studies have set 1 or 2 goals per client (King et al., 1998; King, McDougall, Tucker et al., 1999; Palisano, Haley, & Brown, 1992; Palisano, 1993; Stephens & Haley, 1991)

Determining Who Sets Goals

- According to strict research methodology (Cytrynbaum et al., 1979), the therapist who sets the goals should not be the same therapist who provides the treatment, as they have a vested interest in the client achieving the goals
- In actual clinical practice it is most realistic and cost-effective for the treating therapist to be involved in goal setting (Lewis, Spencer, Haas, & DiVittis, 1987; Kiresuk et al., 1994)

For example, in the King, McDougall, Tucker et al. (1999) study, it did not make sense from a clinical standpoint for one therapist to set the goals in conjunction with the teacher, parent, and child, and then have a different therapist provide treatment who had not established rapport with these individuals (such a procedure would be disruptive to the therapist/client relationship and would not be an accurate representation of the way school-based therapy services are provided)

Minimizing Bias in Goal Setting

- **Use collaborative goal setting**, involving several individuals; this helps to ensure that the goals are clinically meaningful and relevant and not just easy goals that therapists set on their own and can be sure of attaining (Clark & Caudrey, 1986; Stollee et al., 1999)
 - As an example, in King, McDougall, Tucker et al. (1999), each child's treating therapist, parents, teacher, and when appropriate, the child him/herself, determined the child's baseline assessment level (-2) and the expected level of attainment at the end of intervention (0), then, the treating therapist and a research assistant determined the -1, +1, and +2 levels
- Involve "GAS" therapists (not involved in treatment) and a research assistant (or a person well-trained in GAS) in **goal review**
 - In King, McDougall, Tucker et al. (1999), the research assistant and the "GAS" therapists of the same discipline as the child's treating therapist reviewed the GAS scales and made suggestions for improvement
- Use a **standardized procedure** with set criteria [see GAS Checklist, page 18, used by King, McDougall, Tucker et al. (1999)]

Criteria for Writing Goals in GAS Format

Six Basic Requirements: Relevant

Understandable

Measurable

Behavioural

Attainable

Time Frame

- The basic requirements for well-written goals using the GAS format are discussed in the literature (see Clark & Caudrey, 1983; Ottenbacher & Cusick, 1990)
- **Specific criteria** have been established that will help to ensure that the basic requirements for well-written goals are met (see King, McDougall, Palisano et al., 1999)

As a whole, the scale should meet the following criteria:

- Aim for **clinically equal intervals** between all scale levels
e.g. The jump from +1 to +2 should not require a much larger change in attainment than the jump from -2 to -1
- Amount of change between levels needs to be **clinically relevant**
- Improvement should be measured using only **one variable of change** (as long as the goal remains meaningful), keeping other variables constant

e.g. **-2** The child walks *100m* with platform walker in *8 minutes* with *two hands on walker to assist with steering*

- the above goal includes three variables: **distance, time, and level of assistance**
- decide on one variable by which to measure change in performance, say time, and hold other variables constant

e.g. **0** The child walks 100m with platform walker in *6 minutes* with two hands on walker to assist with steering

- Specify a **time period** for achievement of a goal
 - Intervention should take place over a set time period, such as 4 to 5 months or a given number of therapy sessions

Each level on the scale should meet the following criteria:

- All rating scale levels should be phrased in the **present tense**
e.g. The child can
- All scale levels should be **achievable or realistically possible**
- All scale levels should be written as **clearly as possible**, in concrete behavioural terms
- All scale levels should specify an **observable behaviour**

Rating Goals After Intervention

- Each person's performance is **observed** either **naturalistically** (in the classroom, hallway, etc.) or on a **specific assigned task**, depending on the nature of the goal
- For goals whose attainment cannot be observed under naturally occurring circumstances, the therapist interacts with the client and requests performance of the goal
 - The therapist orients the child to perform the goal
 - If prompting is required, the therapist starts with the expected (0) level of the scale and prompts performance up or down, depending on the client's success
- The **number of trials** each client will be given when attempting his/her goal should be established
- Brown et al. (1998) allowed up to 3 trials per goal (for children with severely limited physical and cognitive abilities)
- Consider the **view of the person being rated** (i.e., the person may be motivated to perform well for the visiting rater or may act out inappropriately)
- In order to reduce "hype" regarding the rater's visit, inform the client in advance of the visit and assure the client that regular performance is what is called for
- The rater should be **unobtrusive** (maintain a low profile)

- If the client whose performance is being rated is a child, it is recommended that the original “GAS” therapist confer with the child’s parents/guardians and, when appropriate, the child’s teacher, to reach **consensus** on the child’s goal attainment
- The “GAS” therapist can arrange a meeting or a phone conversation to discuss the child’s progress on each goal
- Conferring with others about a child’s performance will give assurance of rating accuracy, however, the **final rating** to be used for evaluation purposes **should be that made by the “GAS” therapist**

Demonstrating the Reliability of the GAS Rating Procedure

- It is recommended that GAS scores be examined for **inter-rater reliability** to establish absence of bias
 - Inter-rater reliability is determined by correlating the ratings of the original “GAS” therapists” with a second “GAS” therapist on random sub-sample of goals [King, McDougall, Tucker et al. (1999) correlated the ratings of 30% of study goals]
 - The two “GAS” therapists should rate the goals on the same occasion (independently), or one of the raters could observe the therapy session and the other rater observe a video tape of the session

Using GAS for Program Evaluation

- For program evaluation purposes, users of GAS need to calculate a **summary score** to reflect the overall goal attainment of clients
 - The recommended procedure is to convert clients' outcome scores on all their goals into **aggregate T- scores** that can be summarized, using a statistical software package like **Statistical Package for the Social Sciences (SPSS)** [see Cardillo & Smith (1994) for a discussion of T-scores and other summary scores]
 - Aggregate T-scores facilitate **reliability analyses, comparisons across clients and comparisons with standardized measures**
 - Aggregate T-scores for each client can be computed using the formula developed by Kiresuk and Sherman (1968):

$$T = 50 + \frac{(10 \sum WiXi)}{\sqrt{(1-r) \sum Wi^2 + r (\sum Wi^2)}}$$

- In this formula, 50 represents the mean, 10 the standard deviation, Wi the weighting for a particular goal [Cardillo & Smith (1994) strongly **recommend against weighting** goals], Xi the score for each goal, and r the expected overall **intercorrelation** among outcome scores (the formula assumes a correlation among goals of .30)
- This formula may appear time-consuming and difficult to use, but the need for manual computation is rare (if goals are not weighted and the suggested intercorrelation of .30 is used, **tables are available** that allow the quick and easy conversion of outcome scores into T-scores (see Kiresuk et al., 1994)

Appendix A - GAS Training Procedures

<p>All Therapists</p>	<p>General Orientation (2 hours)</p> <ul style="list-style-type: none"> • Orientation session • Handout/Manual
<p>Treating Therapists - Goal Setting</p>	<p>Skill Acquisition (3 hours)</p> <ul style="list-style-type: none"> • Small group practice • One-to-one guidance with trainer <p>Skill Maintenance (2 hours)</p> <ul style="list-style-type: none"> • Continued monitoring of goal setting • Question and answer sessions
<p>Rating Therapists - Goal Rating</p>	<p>Skill Acquisition (4 hours)</p> <ul style="list-style-type: none"> • Review goals with trainer <ul style="list-style-type: none"> • peer review of goal writing • familiarizing raters with the goals that they will be rating • Review of goal rating procedure • Handout/Manual <p>Skill Maintenance (1 hour)</p> <ul style="list-style-type: none"> • Question and answer sessions

Appendix B - Common Errors in Writing GAS Scales

Error	Description	Solution
Overly Generalized Goals	If the expected level (i.e., 0 level) of a scale is written in very general terms (e.g., “the client walks a greater distance in a set period with assistance”), it will be difficult or impossible to create the remaining scale points	The expected level of a scale should be written as clearly as possible (e.g., “the client walks with platform walker 100 metres in six minutes with two hands on walker to assist with steering”).
Overly Technical Goals	A goal setter may use terms specific to his/her profession in creating a scale that the goal rater is not familiar with.	Write goals in common terms, especially if the rater and goal setter differ in professional backgrounds.
Multiple Variables of Change	A scale may include two or more variables of change. This could be problematic if the scale is written so that improvement is expected to occur simultaneously on these variables.	Decide on one variable by which to measure change and hold others constant. If, in doing so, the goal does not remain clinically meaningful, two (or more) variables could change within in a single scale, provided that improvement is not expected to occur simultaneously on these variables.

Unequal Scale Intervals	A scale may be created where the amount of clinical change is greater between, say, the +1 and +2 levels than the amount of change between the -2 and -1 levels.	Aim for clinically equal intervals between all levels of the scale.
Clinically Irrelevant or Unrealistic Scale Levels	A scale may be created where one or more of the levels represents an amount of change that would not be clinically relevant (i.e., amount of change is too small to matter) or amount of change is unrealistic for the client (i.e., amount of change is too great).	The amount of change between all scale levels needs to be clinically relevant and all levels should be achievable for the client.
Using Different Tenses (i.e., Past, Present, Future) When Writing Scale Levels	A GAS scale may be written with the -2 level written in one tense and all other levels in another tense, which could be confusing and bias the goal rater.	All scale levels should be phrased in the present tense, in order for evaluation to make sense at different time points (i.e., “the client can ...”).
Redundant or Incomplete Scale Levels	A scale may be written where a client could be scored on two levels at the same time (e.g., the +1 level has walking distances specified between “40 and 50 metres” and the +2 level specifies distances between “50 and 60 metres”. If a client walks exactly 50 metres, both the +1 and the +2 level would be correct. On the other hand, a gap could be present in the scale where a	Be careful not to create scale levels that are redundant or incomplete. Careful wording (e.g., +1 would be “more than 40 metres and up to 50 metres” and +2 would be “more than 50 metres and up to 60 metres” or specific instructions to the rater (e.g., if a client obtains

	<p>client could not be scored on any level (e.g., the +1 specifies walking distances between “40 and 50 metres” and the +2 specifies distance between “60 and 70 metres”; if a client walks 55 metres, neither +1 nor +2 is correct).</p>	<p>a midway point between two levels, score the client at the lower level) will be of benefit.</p>
<p>Baseline Level is Set at Inappropriate Level</p>	<p>A scale may be written with -2 as the baseline when a client has a progressive, chronic condition. This scale would not capture any deterioration in condition.</p>	<p>When no deterioration is expected in client’s performance, -2 can be defensibly used as the client’s baseline. When evaluating the performance of clients with progressive conditions who may deteriorate in function over time, it would make sense to set the baseline at -1, leaving room for deterioration over the intervention period.</p>
<p>Blank Scale Levels</p>	<p>It may be difficult to write the more extreme levels of a scale, tempting the goal setter to leave these levels blank. If a client happens to achieve an upper or lower extreme, it would be impossible to rate the client’s performance.</p>	<p>Be careful to set goals where it is possible to complete all scale levels.</p>

Appendix C - Goal Attainment Scaling Checklist

Name of Participant: _____

- Therapy Goal: Expected Outcome (i.e., a score of 0)

As a whole, the scale must meet the following criteria:

Criteria	Criterion Met	Criterion Not Met	Comments
Amount of change between levels is clinically important			
There are approximately equal intervals between levels			
There is a set time period for goal achievement			
Scale reflects a single variable of change (or, if not feasible, each level reflects a single variable of change)			

Each level on the scale must meet the following criteria:

Criteria	Criterion Met	Criterion Not Met	Comments
Be written in concrete behavioral terms			
Specify an observable behavior			
Be written in the present tense			
Be achievable or realistically possible			

Appendix D - Examples of Goals Written in GAS Format

Example 1 of GAS Scale for Physical Therapy

Therapy Discipline: Physical Therapy
Target Area: Movement Functions
Sub-category: Control of Voluntary Movement Functions
Functional Level: Impairment
Time Line: 5 months

Goal Attainment Rating Scale:

- 2 The client is able to lift his head and right arm when attempting to roll from supine to prone over his left side.
- 1 The client is able to roll half way from supine to prone over his left side (and attain left-side lying).
- 0 The client is able to roll from supine to prone over his left side.
- +1 The client is able to roll from supine to prone and half way back to supine over his left side (and attain left-side lying).
- +2 The client is able to roll from supine to prone and back to supine over his left side.

Example 2 of GAS Scale for Physical Therapy

Therapy Discipline: Physical Therapy
Target Area: Mobility
Sub-category: Moving Around Using Equipment
Functional Level: Activity Limitation
Time Line: 5 months

Goal Attainment Rating Scale:

- 2 The client walks with walker from library to classroom in 6 minutes, with supervision and verbal cueing.
- 1 The client walks with walker from library to classroom within 4 to 5 minutes, with supervision and verbal cueing.
- 0 The client walks with walker from library to classroom in 3 minutes or less, with supervision and verbal cueing.
- +1 The client walks with walker from library to classroom in 3 minutes or less, with supervision and no verbal cueing.
- +2 The client walks with walker from library to classroom in 3 minutes or less independently (no supervision and no verbal cueing).

Note: if client walks a distance that falls between scale levels (e.g., 5.5 minutes), the client will be rated at the lower scale level

Example 3 of GAS Scale for Physical Therapy

Therapy Discipline: Physical Therapy
Target Area: Mobility
Sub-category: Moving Around
Functional Level: Participation
Time Line: 10 months

Goal Attainment Rating Scale:

- 2 The client takes part in gym class for 10 minutes, with standby assistance.
- 1 The client takes part in gym class for 15 minutes, with standby assistance.
- 0 The client takes part in gym class for 20 minutes, with standby assistance.
- +1 The client takes part in gym class for 25 minutes, with standby assistance.
- +2 The client takes part in gym class for 30 minutes, with standby assistance.

Note: if client takes part for a time that falls between scale levels (e.g., 17 minutes), the client will be rated at the lower scale level

Example 1 of GAS Scale for Speech-Language Pathology

Therapy Discipline: Speech-Language Pathology
Target Area: Voice and Speech Function
Sub-category: Articulation
Functional Level: Impairment
Time Line: 5 months

Goal Attainment Rating Scale:

- 2 The client produces “f” with 90% accuracy at the imitated sound level.
- 1 The client produces “f” in final word position with 90% accuracy at the imitated word level.
- 0 The client produces “f” in final word position with 90% accuracy at the spontaneous word level.
- +1 The client produces “f” in final word position with 90% accuracy at the imitated sentence level.
- +2 The client produces “f” in final word position with 90% accuracy at the spontaneous sentence level.

Example 2 of GAS Scale for Speech-Language Pathology

Therapy Discipline: Speech-Language Pathology

Target Area: Communication

Sub-category: Speaking

Functional Level: Activity Limitation

Time Line: 10 months

Goal Attainment Rating Scale:

- 2 The client reads a short passage aloud, making 10 or more pronunciation errors.
- 1 The client reads a short passage aloud, making between 9 and 7 pronunciation errors.
- 0 The client reads a short passage aloud, making between 6 and 4 pronunciation errors.
- +1 The client reads a short passage aloud, making between 3 and 1 pronunciation errors.
- +2 The client reads a short passage aloud, pronouncing all words correctly.

Example 3 of GAS Scale for Speech-Language Pathology

Therapy Discipline: Speech-Language Pathology

Target Area: Communication

Sub-category: Conversation

Functional Level: Participation Restriction

Time Line: 10 months

Goal Attainment Rating Scale:

- 2 The client responds to questions from the teacher by shaking or nodding her head throughout the school day.
- 1 The client verbally responds to 1 question from the teacher throughout the school day.
- 0 The client verbally responds to 2 questions from the teacher throughout the school day.
- +1 The client verbally responds to 3 questions from the teacher throughout the school day.
- +2 The client verbally responds to 4 or more questions from the teacher throughout the school day.

Example 1 of GAS Form for Occupational Therapy

Therapy Discipline: Occupational Therapy
Target Area: Movement Functions
Sub-category: Control of Voluntary Movement Functions
Functional Level: Impairment
Time Line: 3 months

Goal Attainment Rating Scale:

- 2 The client is able to grasp a small object with dominant hand and hold on to it for no more than 5 seconds.
- 1 The client is able to grasp a small object with dominant hand and hold on to it for 10 seconds.
- 0 The client is able to grasp a small object with dominant hand and hold on to it for 15 seconds.
- +1 The client is able to grasp a small object with dominant hand and hold on to it for 20 seconds.
- +2 The client is able to grasp a small object with dominant hand and hold on to it for 25 seconds or more.

Note: if client grasps object for a period of time between scale levels (e.g., 22 seconds), the client will be rated at the lower scale level

Example 2 of GAS Form for Occupational Therapy

Therapy Discipline: Occupational Therapy
Target Area: Learning and Applying Knowledge
Sub-category: Learning to Write
Functional Level: Activity Limitation
Time Line: 10 months

Goal Attainment Rating Scale:

- 2 The client forms 5 of the 26 cursive letters correctly during one on one supervision.
- 1 The client forms between 6 to 10 of the 26 cursive letters correctly during one on one supervision.
- 0 The client forms between 11 and 25 of the 26 cursive letters correctly during one on one supervision.
- +1 The client forms between 16 and 20 of the 26 cursive letters correctly during one on one supervision.
- +2 The client forms between 21 and 26 of the 26 cursive letters correctly during one on one supervision.

Example 3 of GAS Form for Occupational Therapy

Therapy Discipline: Occupational Therapy

Target Area: Mobility

Sub-category: Hand and Arm Use

Functional Level: Participation

Time Line: 5 months

Goal Attainment Rating Scale:

- 2 The client plays “catch” with a classmate at recess for less than 1 minute, without dropping the ball.
- 1 The client plays “catch” with a classmate at recess for more than 1 and up to 2 minutes, without dropping the ball.
- 0 The client plays “catch” with a classmate at recess for more than 2 and up to 3 minutes, without dropping the ball.
- +1 The client plays “catch” with a classmate at recess, for more than 3 and up to 4 minutes, without dropping the ball.
- +2 The client plays “catch” with a classmate at recess for more than 4 and up to 5 minutes, without dropping the ball.

References

- Brown, D. A., Effgen, S. K., & Palisano, R. J. (1998). Performance following ability-focused physical therapy intervention in individuals with severely limited physical and cognitive abilities. *Physical Therapy, 78*, 934-947.
- Cardillo, J.E., & Smith A. (1994). Psychometric issues. In T. Kiresuk, A. Smith, & J. Cardillo (Eds.), *Goal attainment scaling: Applications, theory, and measurement* (pp. 173-212). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cytrynbaum, S., Ginath, Y., Birdwell, J., & Brandt, L. (1979). Goal attainment scaling: A critical review. *Evaluation Quarterly, 3*, 5-40.
- Ekström, L., Johansson, E., Granat, T., & Carlsberg, E. (2005). Functional therapy for children with cerebral palsy: An ecological approach. *Developmental Medicine and Child Neurology, 47*, 613-619.
- King, G., Tucker, M., Alambets, P., Gritzan, J., McDougall, J., Ogilvie, A., Husted, K., O'Grady, S., Malloy-Miller, T., & Brine, M. (1998). The evaluation of functional, school-based therapy services for children with special needs: A feasibility study. *Physical and Occupational Therapy in Pediatrics, 18*, 1-27.
- King, G., McDougall, J., Tucker, M., Gritzan, J., Malloy-Miller, T., Alambets, P., Gregory, K., Thomas, K., & Cunning, D. (1999). An evaluation of functional, school-based therapy services for children with special needs. *Physical and Occupational Therapy in Pediatrics, 19*, 5-29.
- King, G., McDougall, J., Palisano, R. J., Gritzan, J., Tucker, M. (1999). Goal attainment scaling: Its use in evaluating pediatric therapy programs. *Physical and Occupational Therapy in Pediatrics, 19*, 30-52.
- Kiresuk, T. J., & Sherman, R. E. (1968). Goal attainment scaling: A general method for evaluating comprehensive community mental health programs. *Community Mental Health Journal, 4*, 443-453.
- Kiresuk, T. J., Smith, A., & Cardillo, J. E. (1994). *Goal attainment scaling: Applications, theory, and measurement*. Hillsdale, NJ: Lawrence Erlbaum Associates.

- Lewis, A. B., Spencer, J. H., Haas, G. L., & DiVittis, A. (1987). Goal attainment scaling: Relevance and replicability in follow-up of inpatients. *The Journal of Nervous and Mental Disease*, 175, 408-417.
- Ottenbacher, K. J., & Cusick, A. (1993). Discriminative versus evaluative assessment: Some observations on goal attainment scaling. *The American Journal of Occupational Therapy*, 47, 349-354.
- Palisano, R. J., Haley, S. M., & Brown, D. A. (1992). Goal attainment scaling as a measure of change in infants with motor delays. *Physical Therapy*, 72, 432-437.
- Palisano, R. J. (1993). Validity of goal attainment scaling with infants with motor delays. *Physical Therapy*, 73, 651-658.
- Steenbeek, D., Meester-Delver, A., Becher, J., & Iankhorst, G. (2005). The effect of botulinum toxin type A treatment of the lower extremity on the level of functional abilities in children with cerebral palsy: evaluation with goal attainment scaling. *Clinical Rehabilitation*, 19, 274-282.
- Stephens, T. E., & Haley, S.M. (1991). Comparison of two methods for determining change in motorically handicapped children. *Physical and Occupational Therapy in Pediatrics*, 11, 1-17.
- Stollée, P., Zaza, C., Pedlar, A., & Myers, A. M. (1999) Clinical experience with goal attainment scaling in geriatric care. *Journal of Aging and Health*, 11, 96-124.
- World Health Organization. (2001) ICF. *International Classification of Functioning, Disability and Health*. Geneva: World Health Organization.