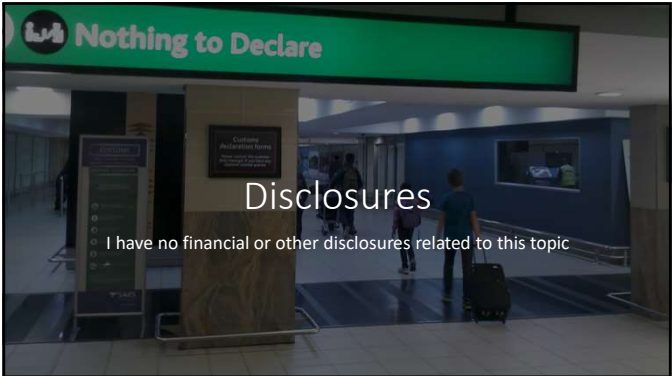


Physical Therapy and TMD: What Patients Wish You Knew

Janey Prodoehl, PhD, PT, CCTT
Physical Therapy Program and Physical Therapy Institute,
Midwestern University
Downers Grove, IL USA
jprodo@midwestern.edu
Clinic: (630) 743-4500
Office: (630) 515-6451
Webpage: <https://www.midwestern.edu/academics/our-faculty/janey-prodoehl-pt-phd.xml>
Twitter: @Janeyprodoehl

1



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Objectives

What do patients wish we knew?

1. Describe evidence supporting physical therapy in the management of patients with TMD.
2. Describe how an individualized physical therapy plan of care for TMD can affect patient outcomes and patient satisfaction.
3. Identify barriers to interprofessional collaboration between dentistry and PT in the management of patients with TMD.
4. Suggest potential strategies to promote improved interprofessional collaboration.

3

Outline

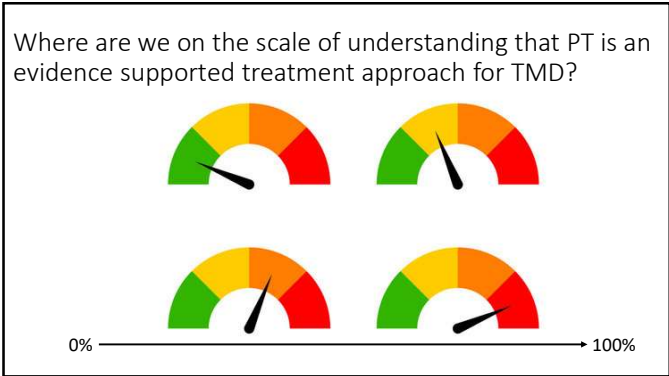
Part 1
Defining PT

Exploring evidence supporting PT & TMD

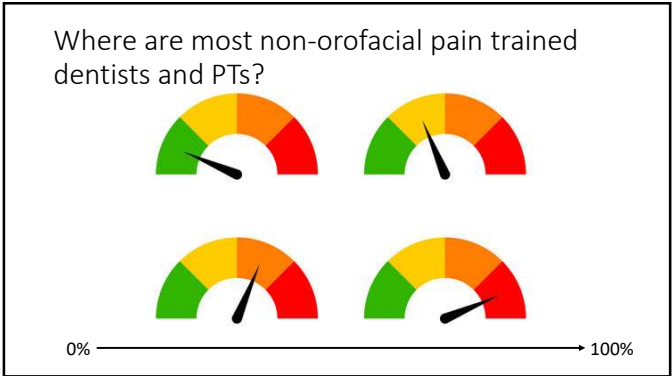
PT is more than the sum of its parts

Part 2
Precision Medicine & Individualized PT

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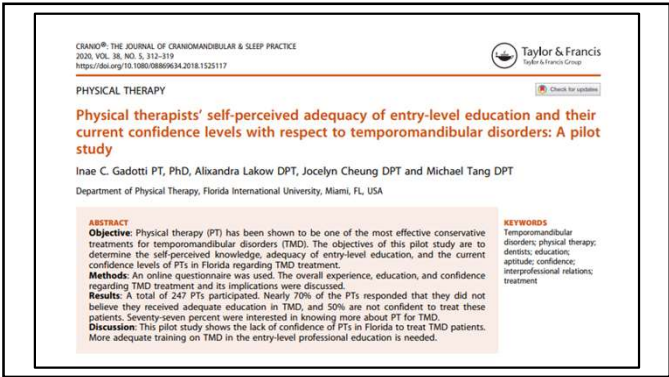
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What is physical therapy anyway?

- A physical therapist (PT) is responsible for evaluating and managing an individual's movement system across the lifespan to promote optimal development; diagnose impairments, activity limitations, and participation restrictions
- The American Physical Therapy Association (APTA) supports the development and utilization of evidence-based practice
- The “movement system” is the core of physical therapist practice, education, and research (APTA 2013)
- Physical therapist practice is based on a biopsychosocial model of health

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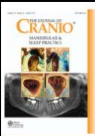
Who are physical therapists?



- Entry level degree since 2012 is doctoral (DPT)
- 10 recognized post graduate specialization certifications although none are mandated (e.g. OCS)
- Other avenues to demonstrate advanced training exist (e.g. CCTT)
- All PTs currently graduating from an accredited PT program in the US have entry level evaluation and management of TMD
- Direct access to PT in all 50 states of the US

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Entry level training of PTs in TMD



CRANIO®
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ISSN: 0886-9634 (Print) 2151-0903 (Online) journal homepage: <http://www.tandfonline.com/soylcr20>

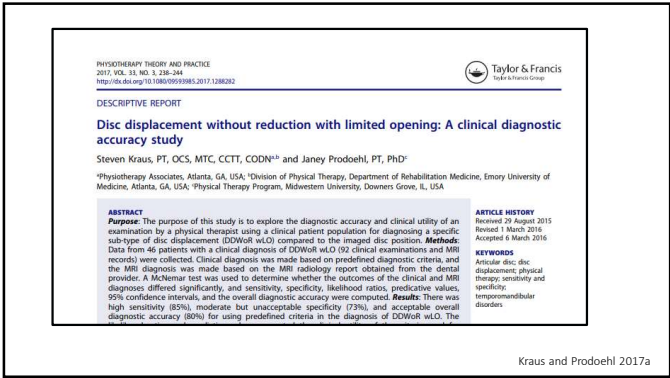
Temporomandibular disorder content in the curricula of physical therapist professional programs in the United States

Janey Prodoehl, Steven Kraus, Gary D. Klasser & Kathy D. Hall

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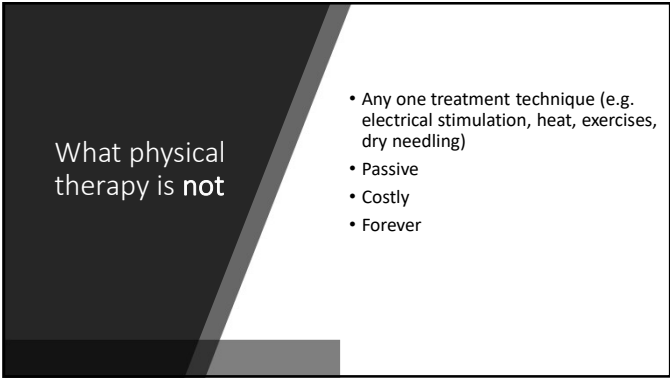
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General Evidence to Support Effectiveness of PT in TMD

- Pre-1992
- Post-1992

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Physical Therapy
Journal of the American Physical Therapy Association

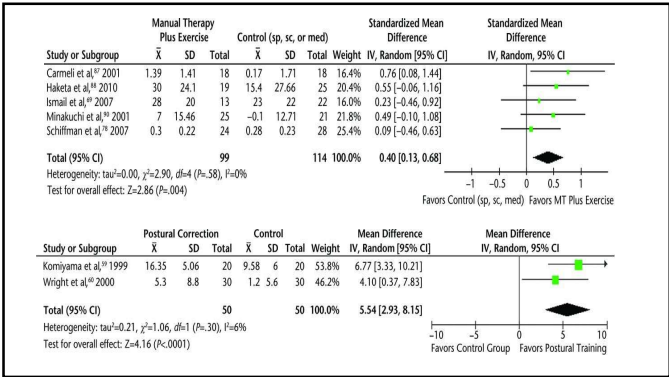
Phys Ther. 2016 Jan; 96(1): 9-25
Published online 2015 Aug 20; doi: 10.2522/ptj.20140548

PMCID: PMC4706597
PMID: 26294683

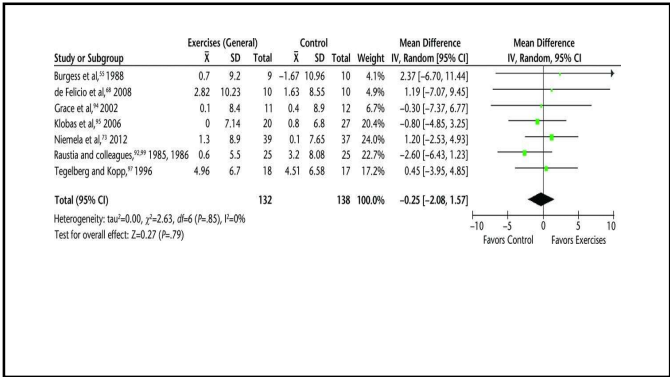
Effectiveness of Manual Therapy and Therapeutic Exercise for Temporomandibular Disorders: Systematic Review and Meta-Analysis

Susan Armijo-Olivo,¹ Laurent Pilon,² Vandana Singh,³ Francisco Neto,⁴ Norman Thie,⁵ Ambra Michelotti,⁶

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Journal of Oral Rehabilitation

Journal of Oral Rehabilitation 2015

Review

Manual therapy for the management of pain and limited range of motion in subjects with signs and symptoms of temporomandibular disorder: a systematic review of randomised controlled trials

L. B. CALIXTRE*, R. F. C. MOREIRA*, G. H. FRANCHINI*, F. ALBURQUERQUE-SENDIN† & A. B. OLIVEIRA*
*Department of Physiotherapy, Federal University of São Carlos (UFSCar), São Carlos, Brazil and †Department of Nursing and Physiotherapy, Salamanca University, Salamanca, Spain

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Journal of Clinical Medicine

MDPI

Review

Efficacy of Manual Therapy in Temporomandibular Joint Disorders and Its Medium- and Long-Term Effects on Pain and Maximum Mouth Opening: A Systematic Review and Meta-Analysis

Andres Herrera-Valencia^{1,2}, Maria Ruiz-Muñoz^{2,3,*}, Jaime Martin-Martin^{1,4,5}, Antonio Cuesta-Vargas^{1,3,5} and Manuel González-Sánchez^{1,3}

¹ Department of Physiotherapy, Faculty of Health Sciences, University of Málaga, 29071 Málaga, Spain; andresherrera@gmail.com (A.H.-V.); acuesta@uma.es (A.C.-V.); mgas23@uma.es (M.G.-S.)

² Department of Nursing and Podiatry, Faculty of Health Sciences, University of Málaga, 29071 Málaga, Spain

³ Institute of Biomedicine of Málaga (IBIMA), 29010 Málaga, Spain; jaime.martinmartin@uma.es

⁴ Department of Human Anatomy, Legal Medicine and History of Science, Faculty of Medicine, University of Málaga, 29010 Málaga, Spain

⁵ School of Clinical Sciences of the Faculty of Health, Queensland University of Technology, Brisbane QLD 4000, Australia

* Correspondence: manam@uma.es; Tel.: +0034 951-95-32-15

Received: 16 September 2020; Accepted: 20 October 2020; Published: 23 October 2020

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Journal of Oral Rehabilitation

Journal of Oral Rehabilitation 2015

Review

Manual therapy for the management of pain and limited range of motion in subjects with signs and symptoms of temporomandibular disorder: a systematic review of randomised controlled trials

L. B. CALIXTRE*, R. P. C. MOREIRA*, G. H. FRANCHINI*, F. ALBUQUERQUE-SENDIN† & A. B. OLIVEIRA*
*Department of Physiotherapy, Federal University of São Carlos (UFSCar), São Carlos, Brazil and †Department of Nursing and Physiotherapy, Salomão University, Salomão, Spain

Summary: There is a lack of knowledge about the effectiveness of manual therapy (MT) on subjects with temporomandibular disorders (TMD). The aim of this systematic review is to synthesise evidence regarding the isolated effect of MT in improving maximum mouth opening (MMO) and pain in subjects with signs and symptoms of TMD. MEDLINE®, CINAHL®, Web of Science, Scielo and EMBASE™ electronic databases were consulted.

(low to moderate evidence) but as effective as toxin botulinum injections (moderate evidence), upper cervical spine thrust manipulation or mobilisation techniques are more effective than control (low to high evidence), while thoracic manipulations are not. There is moderate-to-high evidence that MT techniques protocols are effective. The methodological heterogeneity across trials protocols frequently contributed to decrease quality of

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Effects of a Physical Therapy Protocol in Patients with Chronic Migraine and Temporomandibular Disorders: A Randomized, Single-Blinded, Clinical Trial

Miriam Garrigós-Pedón, PT-PhD
Professor
Departamento de Fisioterapia
Motion in Brains Research Group,
Institute of Neuroscience and Sciences
of the Movement (INCIMOV)
Centro Superior de Estudios
Universitarios La Salle
Universidad Autónoma de Madrid
Madrid, Spain

Roy La Touche, PT-PhD
Professor
Departamento de Fisioterapia
Motion in Brains Research Group
Institute of Neuroscience and Sciences
of the Movement (INCIMOV)

Aims: To investigate the effects of adding orofacial treatment to cervical physical therapy in patients with chronic migraine and temporomandibular disorders (TMD).
Methods: A total of 45 participants with chronic migraine and TMD aged 18 to 65 years were randomized into two groups: a cervical group (CG) and a cervical and orofacial group (COG). Both groups continued their medication regimens for migraine treatment and received physical therapy. The CG received physical therapy only in the cervical region, and the COG received physical therapy in both the cervical and orofacial regions. Both groups received six sessions of treatment that consisted of manual therapy and therapeutic exercise in the cervical region or the cervical and orofacial regions. Scores on the Craniofacial Pain and Disability Inventory (CF-PDI) and the Headache Impact Test (HIT-6) were primary outcome variables, and the secondary outcome variables were scores on the Tampa Scale for Kinesiophobia (TSK-11), pain intensity measured on a visual analog scale (VAS) measure pain threshold (PPTc) in the temporal masseter (PPTc TM).

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- Large scale RCTs are unlikely to show large effect sizes- consider - pragmatic trials
- Small parallel group RCTs which include participants with a clear diagnosis are needed

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[RESEARCH REPORT]

DAVID GRISWOLD, PT, PhD* • KEN LEARMAN, PT, PhD* • MOREY J. KOLBER, PT, PhD*
BRYAN O'HALLORAN, PT, DCS* • JOSHUA A. CLELAND, PT, PhD*

Pragmatically Applied Cervical and Thoracic Nonthrust Manipulation Versus Thrust Manipulation for Patients With Mechanical Neck Pain: A Multicenter Randomized Clinical Trial


Mechanical neck pain, defined as pain exacerbated by cervical spine positions or movements,¹ is the second most common musculoskeletal complaint.²⁰ Physical therapists routinely use orthopaedic manual therapy (OMT) as part

manipulation (NTM), defined as a repetitive, rhythmic, passive oscillatory movement applied at an either small or large amplitude,²¹ or thrust manipulation (TM), defined as a high-velocity, low-

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TMD, Cervical Spine and & HA

- Strong relationship between neck disability and jaw disability (Armijo-Olivo et al. 2013) and patients with TMD report higher self-reported neck disability compared to individuals without TMD (de Oliveira-Souza et al. 2020)
- Subjects with TMD show reduced cervical flexor & extensor muscle endurance compared to healthy individuals but not posture differences (Armijo-Olivo et al. 2013; de Oliveira-Souza et al. 2020)
- Exercises used to improve cervical mobility, cervical functioning, and head and cervical posture have been shown to decrease TMD symptoms (McNeely et al. 2006)
- The addition of orofacial treatment to cervical manual therapy care has shown beneficial effects in CGH as well as signs of TMD (von Piekartz et al. 2013)



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Received: 17 July 2018 | Revised: 30 August 2018 | Accepted: 26 September 2018
DOI: 10.1111/joor.12793

ORIGINAL ARTICLE

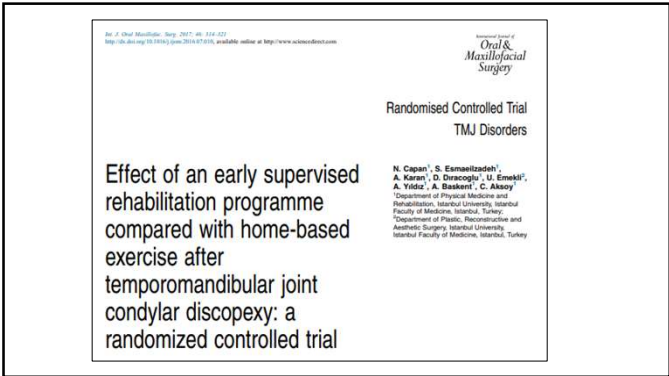
WILEY | Oral Rehabilitation

Effectiveness of mobilisation of the upper cervical region and craniocervical flexor training on orofacial pain, mandibular function and headache in women with TMD. A randomised, controlled trial

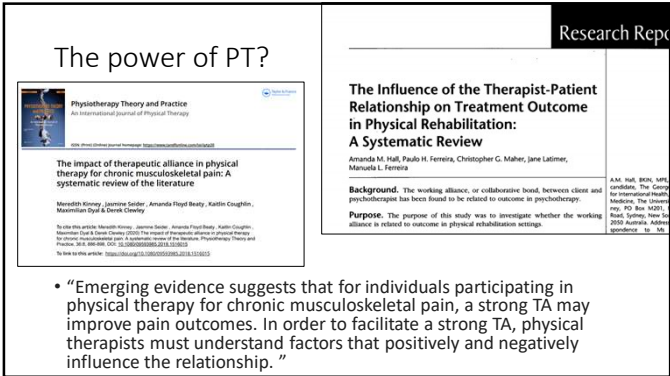
Leticia B. Calixtre¹ | Ana Beatriz Oliveira¹ | Lianna Ramalho de Sena Rosa¹ | Susan Armijo-Olivo^{2,3} | Corine M. Visscher⁴ | Francisco Albuquerque-Sendin⁵

Summary
Background: Studies exploring interventions targeting the cervical spine to improve symptoms in patients with temporomandibular disorders (TMD) are limited.
Objectives: To determine whether mobilisation of the upper cervical region and craniocervical flexor training decreased orofacial pain, increased mandibular func-

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Conscious collaboration choices

- PT interventions influence pain through peripheral and central mechanisms
- While all PTs should now receive entry-level training in evaluation and treatment of TMD, post-graduate training may be needed for more complex patient presentations
- Find a PT who understands pain science and the value of active therapy (look for CCTT or OCS)
- More work needs to be done to make access to trained PTs easier and to standardize entry level training and experience

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Outline

Part 1
Defining PT

Exploring evidence supporting PT & TMD
PT is more than the sum of its parts

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Part 1
Summary

- PT should be evidence informed
- Diverse lines of low to high quality evidence supporting physical in TMD
- Strong relationship between cervical spine dysfunction and TMD
- More work to be done
- PT is more than the sum of its treatments

What about the individual patient experience?

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Outline

Part 2
Precision Medicine & Individualized PT

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Outcomes and Patient Satisfaction with Individualized PT

Cranio: THE JOURNAL OF CRANIOMANDIBULAR & SLEEP PRACTICE
2019, Vol. 33, No. 1, 2P-27
<https://doi.org/10.1080/08836449.2017.1375760>

PHYSICAL THERAPY

Outcomes and patient satisfaction following individualized physical therapy treatment for patients diagnosed with temporomandibular disc displacement without reduction with limited opening: A cross-sectional study

Steven Kraus PT^{1,2,3,4} and Janey Prodoehl PT, PhD⁴

¹Physiotherapy Associates, Atlanta, GA, USA; ²Division of Physical Therapy, Department of Rehabilitation Medicine, Emory University of Medicine, Atlanta, GA, USA; ³Georgia School of Orthodontics, Atlanta, GA, USA; ⁴Physical Therapy Program, Midwestern University, Downers Grove, IL, USA

ABSTRACT
Objective: To investigate physical therapy treatment outcomes and patient satisfaction in patients with a diagnosis of disc displacement without reduction with limited opening (DDWRLwLO).
Methods: Records of 97 patients with DDWRLwLO who received physical therapy in one outpatient clinic were used in this cross-sectional study. Outcomes included number of visits, maximum active interincisal opening, self-reported pain, and patient satisfaction.
Results: The average number of physical therapy visits per patient was 5.5, and there were significant improvements in pain rating and interincisal opening following physical therapy. Effect sizes for these comparisons were large (≥ 1.0). Mean patient satisfaction responses across all symptom areas were considered within normal limits. Patients were satisfied following treatment.

KEYWORDS
Temporomandibular joint disorders; treatment outcome; patient satisfaction; physical therapy; outcome assessment; disc displacement; physical therapy intervention; pain

Taylor & Francis
Taylor & Francis Group

Check for updates

Kraus and Prodoehl 2017b

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Individualized Treatment Plans

- Typical treatment frequency once per week for 6 weeks, but modified based on patient response
- Average treatment session length was 45-60 minutes
- Individualized plan based on a combination of:
 - Patient Education
 - Behavioral Modification
 - Therapeutic Exercise
 - Neuromuscular Reeducation
 - Manual Therapy
 - Modalities

Kraus and Prodoehl 2017b

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Number of PT visits

Mean number of visits 5.5 (range 1-27)

Number of visits by patient

Number of visits	Percentage
1 visit	8%
1-2 visits	12%
4-6 visits	22%
7-10 visits	38%
11 or more visits	20%
1-3 visits	0%

Adapted from Kraus and Prodoehl 2017b

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Mouth Opening

Time Point	Opening (mm)
Pre-opening without pain	~22
Pre-opening with pain	~26
Post-opening with/without pain	~35

Adapted from Kraus and Prodoehl 2017b

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Pain

Time Point	NPR
Pre pain rating	~4.5
Post pain rating	~1.5

Adapted from Kraus and Prodoehl 2017b

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Patient Satisfaction

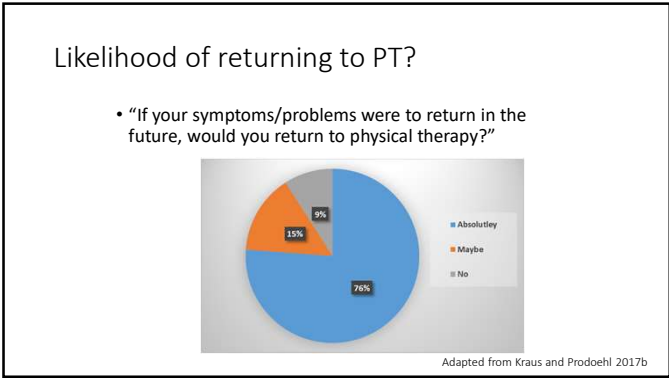
Did PT help with:

- #1 HA
- #2 Jaw pain/tension
- #3 Limited mouth opening
- #4 Jaw popping
- #5 Jaw locking
- #6 Pain with chewing
- #7 Clenching/grinding of teeth
- #8 Neck and shoulder pain/tension
- #9 Waking up at night due to HA/jaw/neck pain
- #10 HA/jaw/neck pain while sitting
- #11 Ear pain/ringing/fullness/other
- #12 Dizziness

Questionnaire Item Number	Number of responses
#1	31
#2	69
#3	68
#4	46
#5	44
#6	62
#7	51
#8	39
#9	33
#10	36
#11	30
#12	14

Kraus and Prodoehl 2017b

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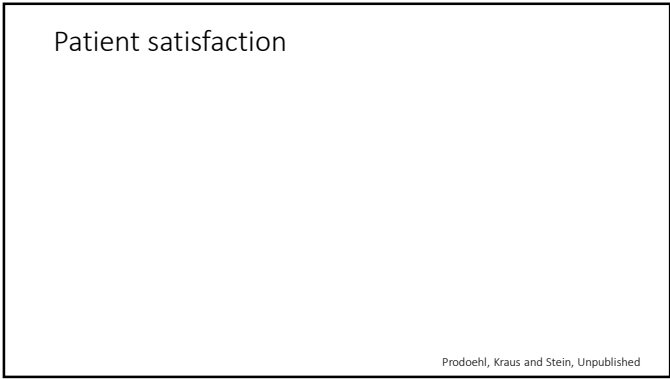
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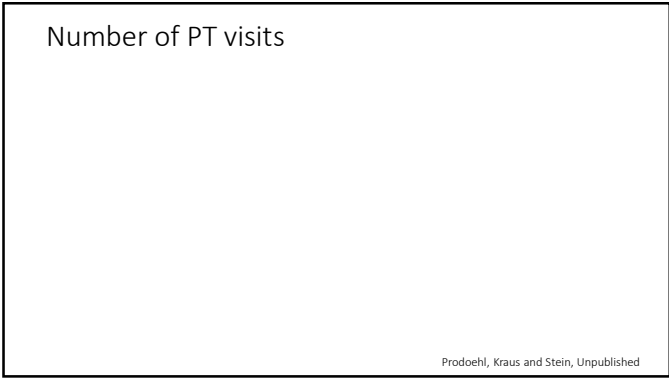
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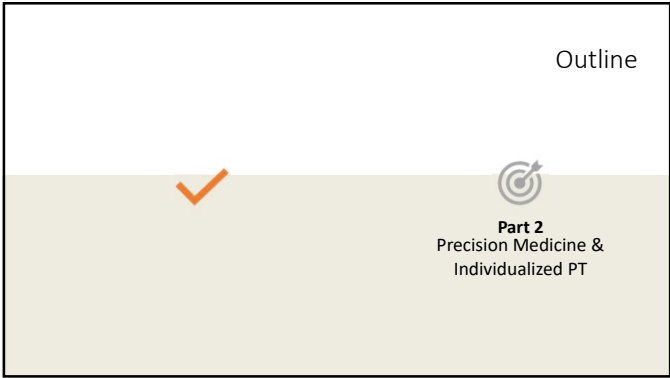
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Part 2
Summary

- Understanding the factors that affect the patient experience and extend the PT plan of care are important
- PT is not one size fits all
- Evidence based PT vs Evidence informed PT-need to consider the individualized patient



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Physical Therapy and TMD: What Patients Wish You Knew

What do patients wish you knew?

What do PTs wish you knew?

50

"I'm so thankful she sent me"

"I didn't understand how my neck problems were affecting my jaw before"

"I wish I'd come to PT sooner"

"I wish there was one type of mouthguard. Its so expensive to have all these different ones"

What do patients wish you knew?

"It's so hard to find help for this"

"PT is hard work"

"It's hard to stop your teeth from touching but I'm learning"

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What do PTs wish you knew?

PT is evidence based

We don't just treat ROM

PT can be effective for all forms of TMD

Find qualified PTs

Better training needed for general dentists

Lack of knowledge about each other's professions

Oral appliances are not the full solution

PT's are not competition for dentists, rather should work in collaboration


We are working on restoring movement not a joint position

Imperative we keep the narrative going on how we can work together

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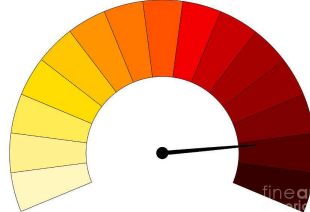
Take home message

- Physical therapy is an evidence supported tool in the toolbox for management of TMD
- Why wouldn't we use all the tools in the toolbox when we need to?



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Where are you on the scale of understanding that PT is an evidence supported treatment approach for TMD?



0% —————> 100%

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