

9th Open forum for Osteopathic Education conference

Osteopathic Models between tradition and evidence-based practice



MOMO: an instructional tool for facilitating osteopathic models operationalization.

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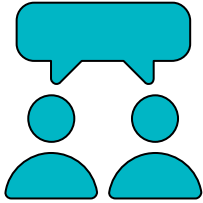
Background



Gamification is a rising trend in medical education, used to increase:

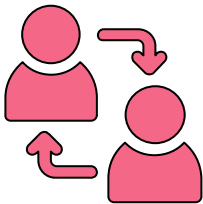
- Student engagement,
- motivation and active learning,
- Professional Collaboration and Feedback

(Gentry et al., 2019)



Recommendations

- Its benefits are maximized when games are purposefully designed with clear educational objectives.
- Integrate gamification with a balanced approach to maintain the educational focus while leveraging its engaging elements.



"Thoughtfully designed gamification transforms medical education into an interactive and stimulating experience"

(Rutledge et al. 2018)

Benefit of Gamification



Increased Motivation and Engagement

- Gamification significantly boosts intrinsic motivation through challenges, instant feedback, and rewards, driving active participation even in complex educational contexts.

(McCoy et al. 2016; Krishnamurthy et al. 2022)

"Gamification facilitates active learning and strengthens motivation" (Krishnamurthy et al., 2022).

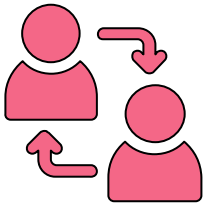


Active Learning and Clinical Competencies

- Evidence shows that gamification improves practical learning, clinical reasoning, and information retention.

(Gentry et al., 2019; Malicki et al., 2020)

"Game elements in education can accelerate clinical learning and foster interdisciplinary collaboration" (Malicki et al., 2020).



Professional Collaboration and Feedback

- Gamification encourages interprofessional collaboration, allowing learners from various disciplines to work together and receive immediate feedback.

(Rutledge et al., 2018)

"Game-based feedback provides valuable reinforcement, allowing learners to adjust and improve in real time" (Rutledge et al., 2018).

Gamification and Clinical Reasoning



Gamification and Clinical Reasoning

- Gamification is used as a tool in medical education to enhance clinical reasoning and decision-making abilities.

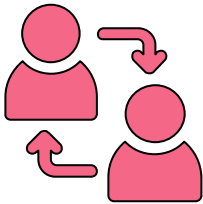
Impact of Gamification on Clinical Reasoning Skills

- Enhanced Decision-Making (Ishizuka et al., 2023).
- Diagnostic Skill Development (Kobner et al., 2021).
- Interdisciplinary Learning and Collaboration (Bayazit et al., 2024).



Summary of Benefits

- Gamification effectively enhances clinical reasoning through immersive, interactive learning that fosters both individual and group skills.



Recommendations for Implementation

- Incorporate gamification with realistic simulations and clinical scenarios while aligning with specific learning objectives for maximum impact.

Game Objective and General Structure

Objective of MOMO:

Develop clinical reasoning in osteopathy through collaborative analysis and discussion of a clinical case.

Components:

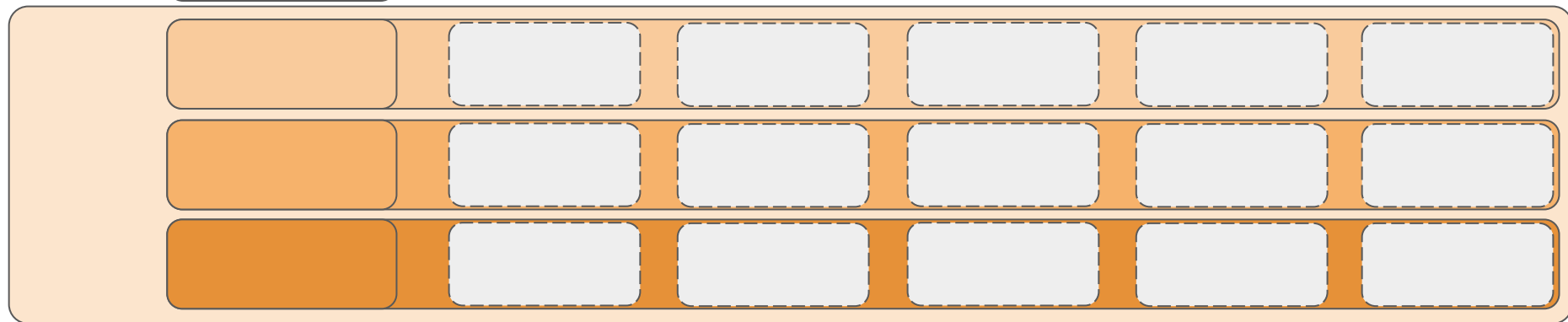
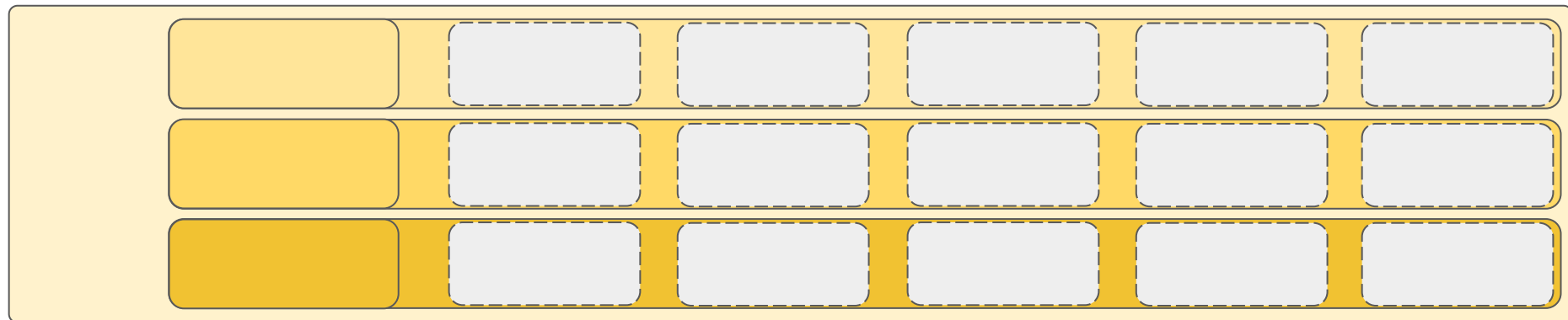
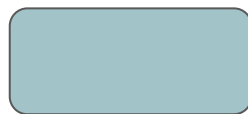
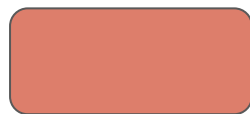
Players: 2 participants working together to complete the game's phases.

Game Area: Divided into 7 levels of analysis (Patient Characteristics, Clinical History, Symptoms, etc.).

Game Cards: Each card represents a key piece of information.

Placement Matrix: Organizes the cards according to the seven levels and the five osteopathic models .





Game Phases and Objectives per Phase

Phase 1: Initial Collection

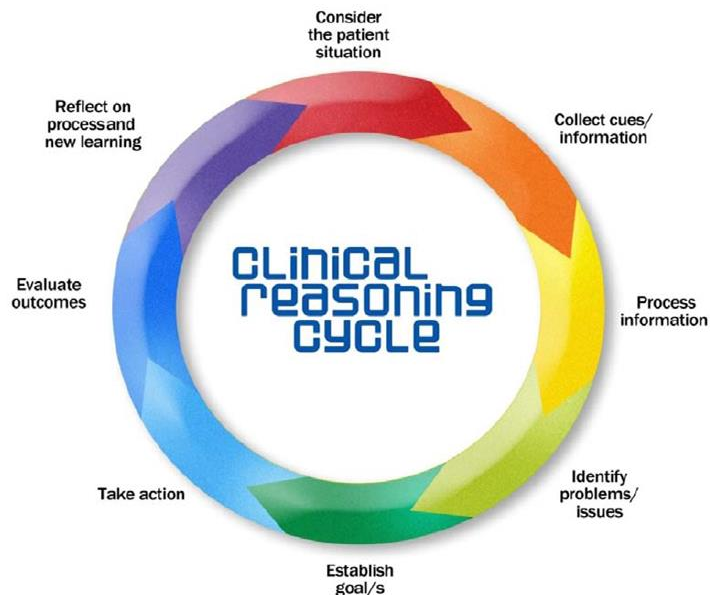
- Information: Patient characteristics and clinical history.
- Objective: Develop a relevant objective examination.
- Placement: Cards placed in the appropriate levels of analysis.

Phase 2: Analysis of Results

- Information: Results of the objective and palpatory examination.
- Objective: Create a treatment plan.
- Placement: Organize cards according to clinical priority levels.

3: Osteopathic Models

- Information: Final clinical reasoning.
- Objective: Identify relevant osteopathic models for salutogenic management.
- Placement: Reorganize cards according to the five osteopathic models.



Explanation of the Seven Levels:

Patient	Patient Characteristics	General information such as age, gender, and lifestyle.
	Clinical History	Past medical events and conditions that impact the current clinical picture.
	Pt. Perception (Symptoms and Altered Function)	Reported symptoms and any limitations perceived by the patient.
DD / Som. Dlsf		Findings from examinations and analysis for differential diagnoses.
Practitioner	Pr. Perception: Palpable , Observable Alterations	Observations and palpatory findings made by the operator.
	Evaluation and Treatment	Details of treatment strategies and evaluation outcomes.
	Operator Characteristics	Skills and attributes of the pr. that influence treatment and patient interaction.

Personal Data

BM

C/R

Neu

BPS

En/Met

Patient	Patient Characteristics					
	Clinical History					
	Pt. Perception (Symptoms and Altered Function)					

DD / Som. Dlsf

Practitioner	Pr. Perception: Palpable , Observable Alterations					
	Evaluation and Treatment					
	Operator Characteristics					

Turn Structure

Each turn in MOMO consists of five main phases, guiding players through a structured, collaborative clinical reasoning process, and culminating in the development of a specific action plan.

1. Card Selection
2. Discussion and Consensus
3. Card Placement in the Analysis Matrix
4. Review and Re-evaluation of Discarded Cards
5. Proposal of an Action Plan
Reflection and Final Debriefing

Generalities: Male Age 55 Watchmaker

Present Complain

Algia cervicale bassa e cervico-dorsale paravertebrale con esordio subdolo 2 anni fa.

Il dolore è di tipo costrittivo, profondo, con distribuzione a fascia, non sono presenti sintomi neurologici o vascolari agli arti superiori.

Assente di notte, insorge gradualmente in tarda mattinata, aumentare costantemente di intensità nell'arco della giornata.

Al risveglio è presente una sensazione di rigidità cervicale che tende a scomparire dopo pochi minuti.

Più intenso durante i giorni feriali in particolare durante quelli di prolungata attività lavorativa (scala del dolore: 6/10), tende a diminuire di intensità durante il weekend e le ferie.

Evoluzione: lentamente ingravescente

Fattori allevianti: clinostasi, massaggi, applicazione locale di calore, antinfiammatori, miorilassanti.

Fattori aggravanti: posizioni mantenute in flessione della cervicale, freddo (aria condizionata), stress.

Sintomi associati: sensazione di scroscio articolare nei movimenti di rotazione destra (dx) e sinistra (sx), non sono presenti sintomi costituzionali.

Il dolore non varia con i movimenti respiratori (respiro profondo, tosse, starnuto) o con l'attività fisica (.

Non risulta inoltre associabile all'attività digestiva.

Nel periodo precedente l'esordio del dolore, il paziente non riferisce cambiamenti nelle abitudini lavorative o nello stile di vita.

History

37 anni fa fumatore (20 sigarette al giorno)

36 anni fa epatite A

32 anni fa polmonite virale bilaterale nel con ricovero ospedaliero di due settimane

23 anni fa diagosi di coleditiassi asintomatici.. Esegue controlli ecografici ogni 6 mesi.

12 anni fa due episodi di bronchite acuta

11 anni fa emorroidi esterne diagnosticate

11 anni fa diagnosticata prostatite cronica abatterica

10 anni fa due episodi di bronchite acuta

9 anni fa occhiali per miopia

4 anni fa: frattura traumatica composta di omero prossimale dx in seguito a caduta da una scala sulla spalla dx. Trattamento conservativo con applicazione di bendaggio Desault per 25 giorni. Il paziente riferisce di non aver intrapreso alcun ciclo di fisioterapia riabilitativa in seguito alla rimozione del bendaggio.

Stomatognatico: bruxismo notturno

Turn Structure

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- **Information Analysis:** Players review the clinical information relevant to the current phase (e.g., clinical history, objective examination results).
- **Identification of Key Elements:** Each player identifies essential information and selects a limited number of cards that they consider crucial for the phase's objective, setting aside less relevant cards.

Turn Structure

Low cervical and cervico-thoracic paravertebral pain with subtle onset 2 years ago

More intense during the days of prolonged work activity (pain scale: 6/10),

Aggravating factors: positions maintained in cervical flexion cold (AC), stress.

36 ya: hepatic

The pain is constraint, deep, with band distribution.

It tends to decrease in intensity during the weekend and holidays.

Pain does not vary with respiration ((deep breath, cough, sneezing) or with physical activity (stairs).

37 ya: smoker (20 cigarettes per day)

There are no neurological or vascular symptoms in the upper limbs.

Associated symptoms: there are no constitutional symptoms.

4 ya: traumatic fracture composed of proximal r humer following fall from a scale on the right shoulder.

evaporativa (scala del dolore:

Absent at night, gradually arises in the late morning

Evolution: slowly worsening

4 ya: Conservative treatment with Desault bandage for 25 days.

la (dx) e sinistra (sx), non on l'attività fisica (.

It constantly increases in intensity over the day.

Pain does not vary with respiration (deep breath, cough, sneezing) or with physical activity).

12 ya: two episodes of acute bursitis.

Upon awakening there is a feeling of cervical rigidity that tends to disappear after a few minutes.

It is not associated with digestive activity.

23 ya: asymptomatic cholelithiasis diagnosed in. Performs ultrasound checks every 6 months.

Mitigating factors: clinostasis, massages, local heat, anti-inflammatory, myorilassants.

In the period before pain onset, the patient does not report changes in work habits or lifestyle.

32 ya: bilateral viral pneumonia in with two weeks hospitalization

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2. Discussion and Consensus

- **Justification of Choices:** Each player, when proposing a card, explains the clinical reasoning behind their choice.
- **Consensus for Placement:** A card can be placed only if both players agree on its relevance for the phase. In case of disagreement, the card can be placed temporarily with a marker, indicating the need for future review.

Turn Structure

Patient Characteristics	37 ya: smoker (20 cigarettes per day)		More intense during the days of prolonged work activity (pain scale: 6/10).
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DD / Som. Dlsf			
Pr. Perception: Palpable , Observable Alterations			
Evaluation and Treatment			
Operator Characteristics			

3. Card Placement in the Analysis Matrix

- **Alignment with Levels:** Agreed-upon cards are placed in the most appropriate levels of analysis (e.g., Clinical History, Symptoms).
- **Proximity and Clinical Priority:** Cards with related themes are positioned near each other, with emphasis on those of greater clinical importance.
- **Case Progression:** This progressive placement allows players to build a more comprehensive and structured understanding of the clinical case.

Turn Structure

36 ya: hepatitis A

It tends to decrease in intensity during the week-end and holidays

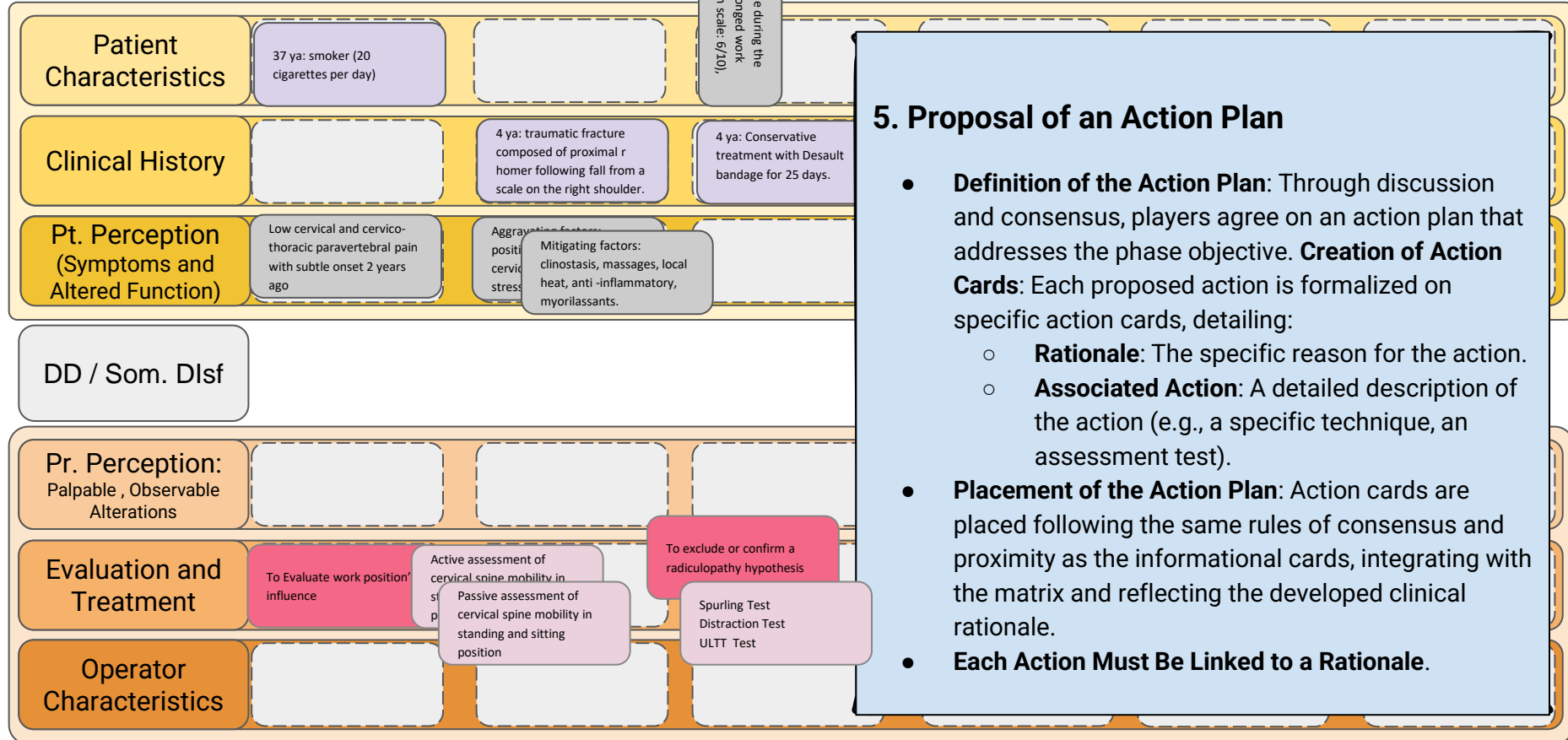
12 ya: two episodes of acute bronchitis

It is not associated with digestive activity

4. Review and Re-evaluation of Discarded Cards

- **Review of Unselected Cards:** At the end of the turn, players may review the discarded cards to determine if any previously overlooked information is now relevant.
- **Reselection Rule:** Up to two discarded cards may be retrieved and placed in the matrix if deemed necessary for a fuller understanding of the case.

Turn Structure



Turn Structure



Reflection and Final Debriefing

- **Coherence Check:** At the end of each turn, players verify that all placed information and actions are consistent with the phase's objective.
- **Reflective Debriefing:** Players discuss the effectiveness of the proposed action plan and reflect on possible improvements in collaboration and decision-making for subsequent phases. This reflection allows for the consolidation of clinical reasoning and identification of improvement areas.

Rules for Card Placement

Alignment with Levels of Analysis:

- Each card must be placed in the most appropriate level based on its clinical relevance (e.g., Structural, Neurological).

Proximity Criteria:

- Place related cards near each other to maintain focus on essential information.

Consensus for Placement:

- A card can only be placed if both players agree on its importance for the phase.

Temporary Placement (Divergent Cards):

- In case of disagreement, a card may be placed with a marker for future review.

Review of Discarded Cards:

- At the end of each phase, review discarded cards and reconsider up to two cards per phase if deemed relevant.

Method for Player Confrontation

Explanation of Choice:

- Each card must be accompanied by an explanation of “Why” it is relevant for the phase, clarifying the clinical reasoning.

Discussion and Reciprocal Feedback:

- The proposing player acts as the Proponent, while the other player is the Critic, asking questions to explore weaknesses or alternatives.

Alternating Roles:

- Players alternate between the roles of Proponent and Critic, enhancing their analysis and reflection skills.

Consensus and Mediation:

- Cards are placed only with consensus. If disagreement persists, a temporary placement can be used for further review.

Final Debriefing:

- At the end of each phase, players review the coherence of the placed cards and reflect on the effectiveness of their decisions, consolidating their clinical reasoning.

Phase 2

Pelvis rotated to the right

Intrarotation and adduction attitude of the right humerus

Sternochondral and chondrocostal stiffness

Cranial dysfunction in functional right sideb-rot

rettilineized cervical spine with the head's antepulsion

Reduction of the triangle of the size on the right

Pelvic diaphragm hypertonic and painful to palpation

Barral test: Posterior traction. median

Compensatory extension of C0-C1

Antepulsion and depression of the right scapular cing.

Cervical paravertebral hypertonicity c/d bilateral scalene, major on the left

Add vector test: traction to right hypocondrium

Flexion of the cervico thoracic passage

External rotation deficit. right glenohumeral.

Thoracic diaphragm in inspiration

Tensile alteration and tenderness of pleural suspensory ligaments on the left

A/P Increase lumbar and dorsal curves

Right glenohumeral abduction deficit

Psoas retraction test: positive bilaterally, more on the left

Increased tissue density and tenderness to deep palpation in the right hypocondrium.

Extension of the dorsolumbar

Increased density and tenderness in septa between the right infraspi., T. minor and major.

Acute Somatic Dysfunctions: C2 (left rot) D4 (ERSdx)

Liver dysfunction in Inspiration

High lumbar lordosis with L2 pivot.

Dysfunction in expiration. of K5-K6-K7-K8 on the right.

Chronic Somatic Dysfunctions D7 (FRSsx)-D9 (FRSdx)

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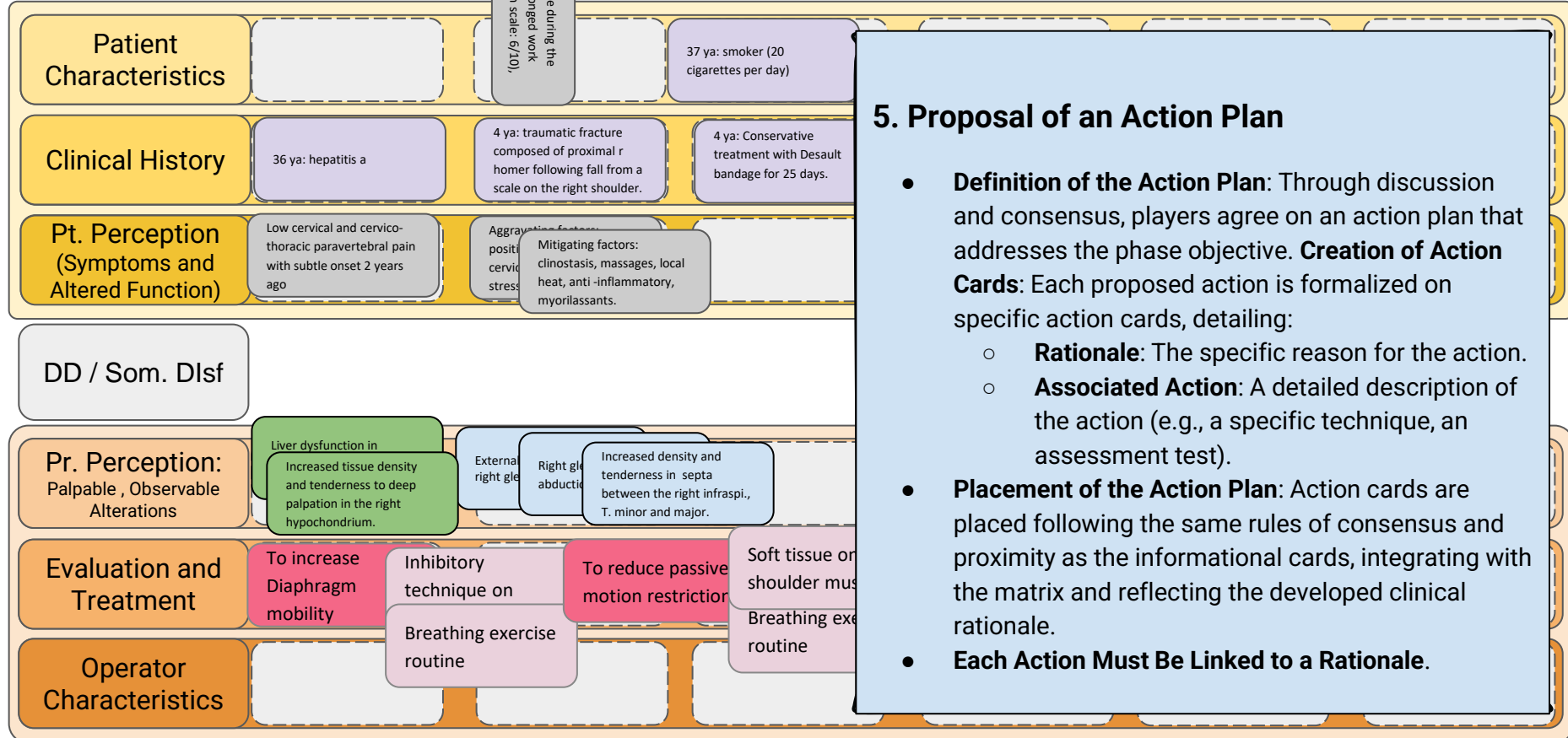
Phase 2

Patient Characteristics	37 ya: smoker (20 cigarettes per day)		More intense during the days of prolonged work activity (pain scale: 6/10).
Clinical History		4 ya: traumatic fracture composed of proximal r homer following fall from a scale on the right shoulder.	4 ya: Conservative treatment with Desault bandage for 25 days.
Pt. Perception (Symptoms and Altered Function)	Low cervical and cervico-thoracic paravertebral pain with subtle onset 2 years ago	Aggravating factors: positive cervic stress	Mitigating factors: clinostasis, massages, local heat, anti-inflammatory, myorilassants.
DD / Som. Dlsf			
Pr. Perception: Palpable, Observable Alterations	Liver dysfunction in Increased tissue density and tenderness to deep palpation in the right hypochondrium.	External right gle	Right gle abduction Increased density and tenderness in septa between the right infraspi., T. minor and major.
Evaluation and Treatment			
Operator Characteristics			

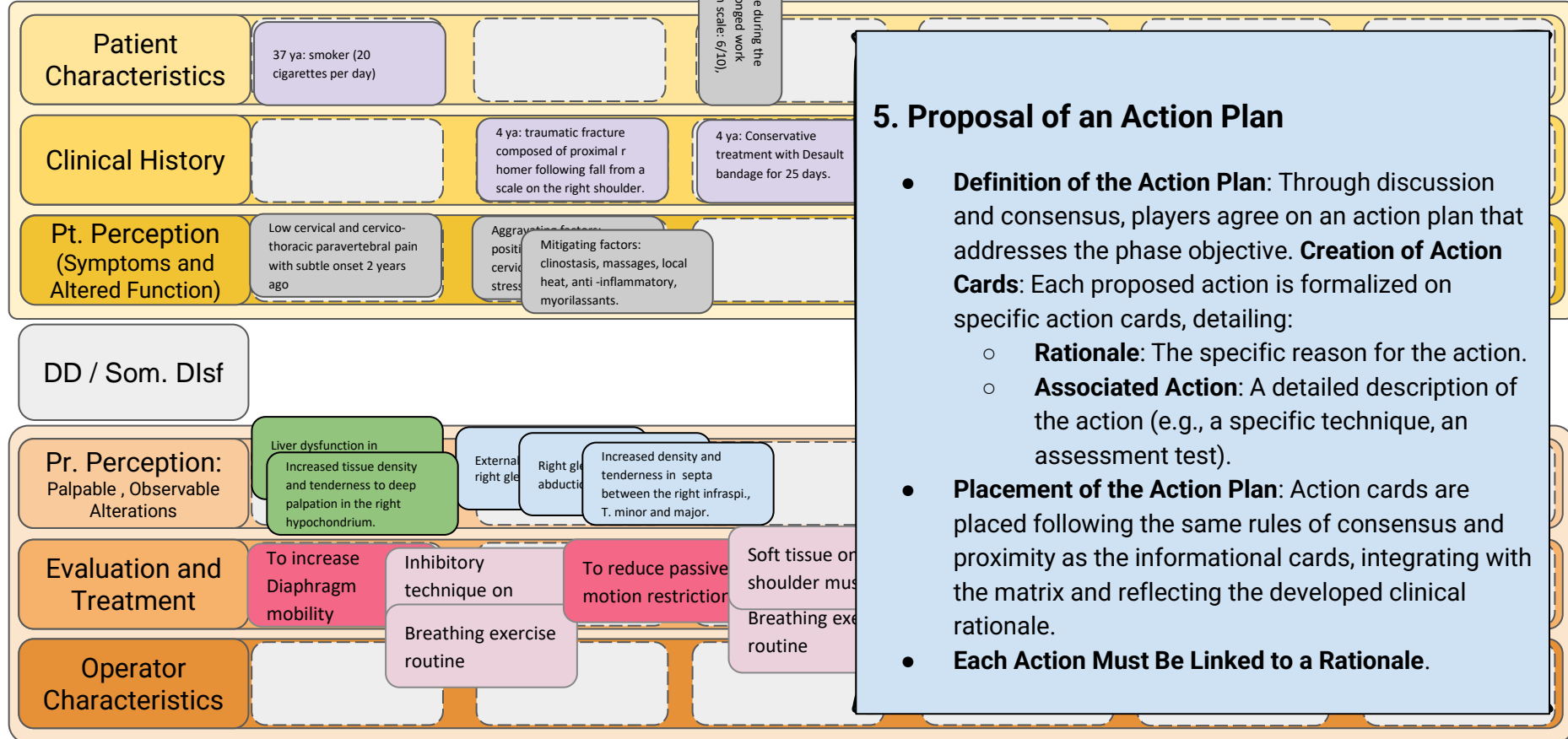
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Phase 2



Turn Structure



Phase 3

More intense during the days of prolonged work activity (pain scale: 6/10).

37 ya: smoker (20 cigarettes per day)

Patient Characteristics

Clinical History

36 ya: hepatitis a

4 ya: traumatic fracture composed of proximal r humer following fall from a scale on the right shoulder.

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Pt. Perception (Symptoms and Altered Function)

Low cervical and cervico-thoracic paravertebral pain with subtle onset 2 years ago

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DD / Som. Disf

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Liver dysfunction in

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External right gl

Right gl abductio

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Evaluation and Treatment

To increase Diaphragm mobil

Inhibitory technique on diaphragm

To reduce passive motion restriction

Soft tissue on shoulder muscle

Breathing exercise routine

Operator Characteristics

Breathing exercise routine

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Evaluation and Treatment	To increase Diaphragm mobil	Inhibitory technique on diaphragm	To reduce passive motion restriction	Soft tissue on shoulder muscle			
Operator Characteristics		Breathing exercise routine		Breathing exercise routine			

Personal Data	BM	C/R	Neu	BPS	En/Met
Patient Characteristics					
Clinical History					
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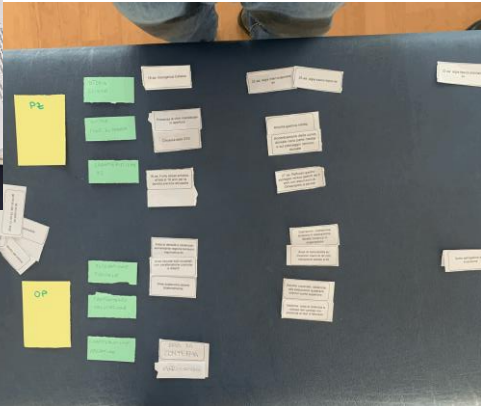
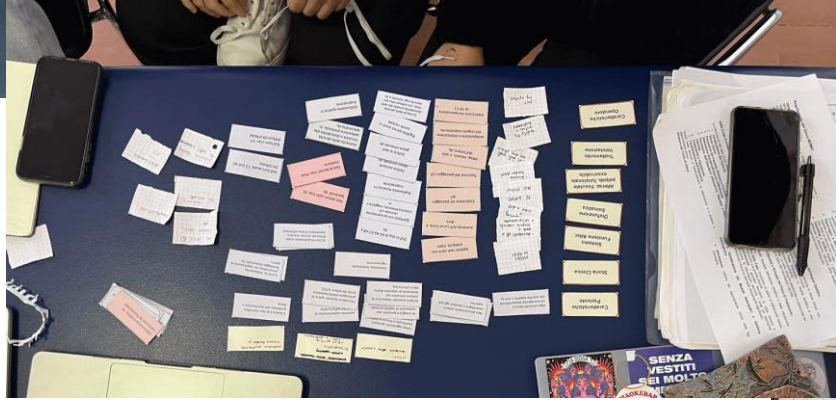
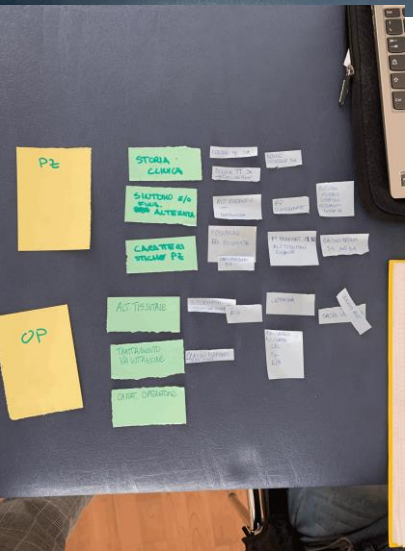
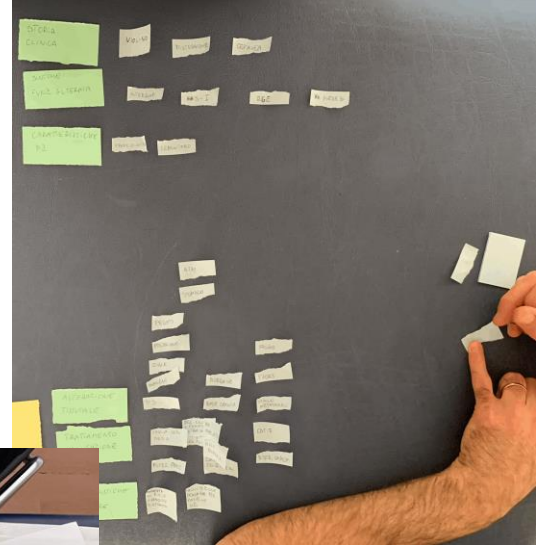
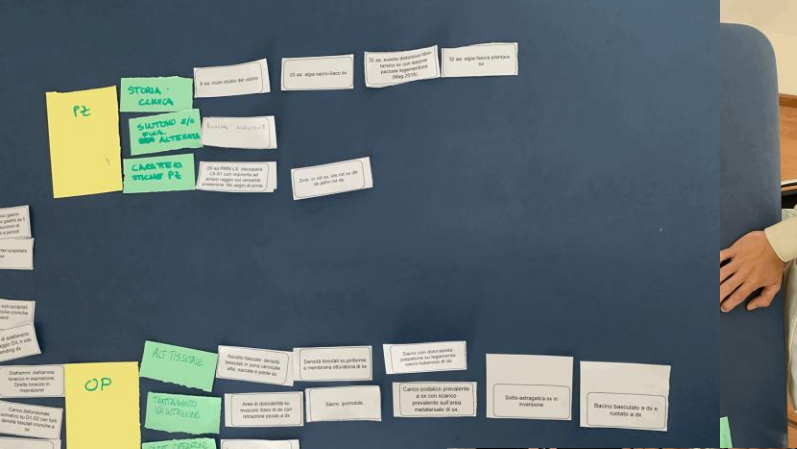
Breathing exercise routine

To increase Dia

Inhibitory technique on diaphragm

Breathing exercise routine

Future Developments?



Thank you for the attention!

Synthetic References

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Low cervical and cervico-thoracic paravertebral pain with subtle onset 2 years ago	More intense during the days of prolonged work activity (pain scale: 6/10),	37 ya: smoker (20 cigarettes per day)	Pelvis rotated to the right	Antepulsion and depression of the right scapular cing.	External rotation deficit. right glenohumeral.
The pain is constraint, deep, with band distribution.	It tends to decrease in intensity during the weekend and holidays.	36 ya: hepatitis a	retilineized cervical spine with the head's antepulsion	Cranial dysfunction in functional right sideb-rot	Right glenohumeral abduction deficit
There are no neurological or vascular symptoms in the upper limbs.	Associated symptoms: there are no constitutional symptoms.	32 ya: bilateral viral pneumonia in with two weeks hospitalization	Compensatory extension of C0-C1	Barral test: Posterior traction. median	Increased density and tenderness in septa between the right infraspi., T. minor and major.
Absent at night, gradually arises in the late morning	Evolution: slowly worsening	23 ya: asymptomatic cholelithiasis diagnosed in. Performs ultrasound checks every 6 months.	Flexion of the cervico thoracic passage	Add vector test: traction to right hypocondrium	Dysfunction in expiration. of K5-K6-K7-K8 on the right.
It constantly increases in intensity over the day. ,	Pain does not vary with respiratory movements (deep breath, cough, sneezing) or with physical activity (making stairs).	9 ya: glasses for myopia	A/P Increase lumbar and dorsal curves	Tensile alteration and tenderness of pleural suspensory ligaments on the left	Sternochondral and chondrocostal stiffness
Upon awakening there is a feeling of cervical rigidity that tends to disappear after a few minutes.	It is not associated with digestive activity.	12 ya: two episodes of acute bronchitis	Extension of the dorsolumbar	Increased tissue density and tenderness to deep palpation in the right hypocondrium.	Pelvic diaphragm hypertonic and painful to palpation
Mitigating factors: clinostasis, massages, local heat, anti-inflammatory, myorilassants.	Pain does not vary with respiration ((deep breath, cough, sneezing) or with physical activity (stairs).	4 ya: traumatic fracture composed of proximal r homer following fall from a scale on the right shoulder.	High lumbar lordosis with L2 pivot.	Liver dysfunction in Inspiration	Cervical paravertebral hypertonicity c/d bilateral scalene, major on the left
Aggravating factors: positions maintained in cervical flexion cold (AC), stress.		4 ya: Conservative treatment with Desault bandage for 25 days.	Intrarotation and adduction attitude of the right humerus	Acute Somatic Dysfunctions: C2 (left rot) D4 (ERSdx)	Thoracic diaphragm in inspiration
Pain does not vary with respiration ((deep breath, cough, sneezing) or with physical activity (stairs).			Reduction of the triangle of the size on the right	Chronic Somatic Dysfunctions D7 (FRSsx)-D9 (FRSdx)	Psoas retraction test: positive bilaterally, more on the left