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**Axial Block (AxB):
A Position Paper on Definition,
Terminology, and Pathophysiology**

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Abstract

The purpose of this position paper is to establish a unified terminology and pathophysiological framework for Axial Block (AxB). The Axial Organ (AxO) is defined as a continuous biomechanical and neurophysiological system extending from the pelvic ring to the skull, while the Axial Corresponding Functional Unit (AxCFU) denotes the integrated anatomical and functional complex associated with each articulation of the AxO. AxB is defined as an articulation-centered functional disorder of an AxCFU characterized by a mechanical constraint and impaired physiological joint motion. Within the proposed pathophysiological model, altered articular congruence, including transient or persistent malposition, represents a principal biomechanical feature, while the affected AxCFU may act as a peripheral source of altered afferent input. AxB does not itself constitute Persistent Afferent Bias (PAB), although persistent altered input arising from an affected AxCFU may contribute to its emergence or maintenance within the broader Somato-Psychic Pathway (SPP) framework. The paper distinguishes multiple Axial Blocks (AxBb) from an AxBb Chain, defined as a biomechanically and neurophysiologically interconnected organization of AxBs that behaves as an integrated functional unit. Recurring clinical observations underlying the framework include the predominance of AxBb over isolated AxB and the coordinated persistence, recurrence, release, and progressive extension of AxBb Chains. Mobilization, unblocking, spontaneous reposition, reposition, and functional restoration of the AxCFU are defined as distinct processes or outcomes that may participate in AxB/AxBb resolution. These distinctions are intended to standardize terminology rather than to prescribe a universal treatment protocol or establish therapeutic efficacy. Each concept is presented through a primary definition, explanatory commentary, and defining characteristics. The proposed nomenclature provides a common basis for clinical communication, mechanistic research, and empirical validation of the AxB framework.

Keywords: Axial Block; Axial Organ; Axial Corresponding Functional Unit; Axial Blocks; AxBb Chain; joint biomechanics; altered afferent input; Persistent Afferent Bias; Somato-Psychic Pathway

Purpose of this Position Paper

This position paper establishes a formal terminology and conceptual framework for Axial Block (AxB), introducing formal definitions of the Axial Organ (AxO), the Axial Corresponding Functional Unit (AxCFU), Axial Block (AxB), Axial Blocks (AxBb), and AxBb Chains. Its

purpose is to provide a consistent foundation for clinical communication, scientific research, and future theoretical development within the Somato-Psychic Pathway (SPP). The paper is intended to define terminology rather than to evaluate therapeutic interventions or establish clinical practice guidelines.

Scope and Evidence Status

This position paper provides stipulative definitions for terminology used within the AxB framework. The definitions are based on recurring clinical observations together with existing anatomical, biomechanical, and neurophysiological evidence. Specific proposed mechanisms—including the role of altered articular congruence, the pathways linking AxB to altered afferent input and PAB, and the biomechanical and neurophysiological basis of AxBb Chain behavior—require further empirical validation. The paper is intended to standardize terminology and formulate testable mechanisms rather than to establish validated diagnostic criteria, therapeutic efficacy, or clinical practice guidelines.

Statement 1. Axial Organ (AxO)

Primary Definition

*For the purposes of this position paper, the **Axial Organ (AxO)** is defined as the continuous biomechanical and neurophysiological system extending from the pelvic ring through the vertebral column, the rib cage, including its articulations, and the craniovertebral junction to the skull.*

Commentary

The **AxO** is introduced as a functional concept rather than merely an anatomical designation. The term *Axial Organ* is used here in a systems-level functional sense and does not imply recognition of the AxO as a discrete organ in conventional gross-anatomical nomenclature. Although its individual components have traditionally been described as separate anatomical regions, they operate as a biomechanically and neurophysiologically interconnected continuum. Mechanical forces, ligamentous tension, muscle activity, and fascial continuity permit transmission of mechanical effects between anatomically distant regions, while proprioceptive and other sensory pathways provide continuous neural information relevant to postural and movement control (Vleeming et al., 1995; Wilke et al., 2018; El-Monajjed & Driscoll, 2021; Sousa et al., 2012; Živný, 2026a).

The AxO represents the integrated functional system responsible for maintaining the structural and functional integrity of the body axis. Whereas the axial skeleton represents the osseous framework of the body axis, the AxO comprises the integrated functional system formed by the articulations of the axial skeleton together with their corresponding soft tissues, vascular supply, neural structures, and sensorimotor regulation. The integrity of the AxO therefore depends on the coordinated interaction of all its structural and functional components rather than on the skeletal framework alone (Wilke et al., 2018; Sousa et al., 2012).

Defining Characteristics

An anatomical structure is regarded as part of the **AxO** if it:

- contributes to the biomechanical continuity of the body axis;
- participates in the neurophysiological integration of the body axis; and
- forms part of the continuous axial functional system extending from the pelvic ring to the skull.

Statement 2. Axial Corresponding Functional Unit (AxCFU)

Primary Definition

*For the purposes of this position paper, the **Axial Corresponding Functional Unit (AxCFU)** is defined as the integrated anatomical and functional complex associated with a specific articulation of the AxO, comprising all structural and functional components required for its normal biomechanical function, sensorimotor control, and physiological afferent signaling.*

Commentary

The concept of the **AxCFU** is introduced to define the complete functional entity associated with each articulation of the AxO. An articulation cannot be understood solely as the mechanical contact between opposing articular surfaces. Its physiological function depends on the coordinated interaction of multiple structural and functional components that operate as a single integrated functional unit (Zimny, 1988; Riemann & Lephart, 2002; Potekhina et al., 2020).

Each AxCFU comprises the articular surfaces, articular cartilage, joint capsule, ligaments, periarticular muscles, fasciae, vascular supply, neural structures, proprioceptors, nociceptors, autonomic innervation, and motor innervation. Together, these components maintain joint congruence, regulate physiological movement, ensure mechanical stability, and generate the physiological afferent signaling required for normal sensorimotor control (Samuel, 1952;

Zimny, 1988; Riemann & Lephart, 2002; Han et al., 2016; Schaible et al., 2009; Potekhina et al., 2020). The AxCFU, rather than the articulation itself, represents the fundamental functional unit of the AxO.

Because periarticular muscles, fasciae, vessels, and neural pathways may contribute to more than one articulation, neighboring AxCFUs may overlap anatomically and functionally. The components of each AxCFU nevertheless operate as a functionally integrated whole; disturbance of any single component may therefore alter the behavior of the entire unit. Functional disorders affecting an AxCFU should accordingly not be regarded as isolated abnormalities of individual anatomical structures but rather as disturbances of an integrated biomechanical and neurophysiological system.

Defining Characteristics

An **AxCFU** is characterized by the integration of:

- an articulation;
- its articular surfaces and cartilage;
- the joint capsule and ligaments;
- periarticular muscles and fasciae;
- vascular and neural structures; and
- proprioceptive, nociceptive, autonomic, and motor components functioning as a single integrated unit.

Statement 3. Axial Block (AxB)

Primary Definition

*An **Axial Block (AxB)** is defined as an articulation-centered functional disorder of an AxCFU, characterized by a mechanical constraint and impaired physiological joint motion; within the proposed pathophysiological model, altered articular congruence, including transient or persistent malposition, represents a principal biomechanical feature, while the affected AxCFU may act as a peripheral source of altered afferent input.*

Commentary

AxCFU dysfunction alone does not constitute an **AxB**. The term AxB is reserved for an articulation-centered disturbance in which a mechanical constraint impairs physiological joint motion and affects the function of the corresponding AxCFU. Altered articular congruence, including transient or persistent malposition, is regarded within this framework as a principal

biomechanical feature, but not as a synonym for radiographically demonstrable subluxation. The model also allows for an AxB in which a mechanical constraint is clinically evident even when malposition cannot be directly demonstrated. Conceptually related models of somatic dysfunction likewise describe musculoskeletal dysfunction as involving interacting biomechanical, myofascial, and neural components rather than an isolated structural abnormality (Tozzi, 2015; Potekhina et al., 2020).

Within the proposed pathophysiological model, altered articular congruence or another mechanically constrained articular state may modify local joint biomechanics and evoke **reflex muscular stabilization**, consisting predominantly of protective muscular contractures. Such contractures may restrict physiological joint motion, help maintain the mechanical constraint, and impair the physiological function of the AxCFU. Altered articular and periarticular afferent input has independently been associated with changes in muscle tone, joint mobility, proprioception, and pain, supporting a reciprocal relationship between joint dysfunction, sensory input, and motor response (Slosberg, 1988). Within this position paper, reflex muscular stabilization therefore refers primarily to protective muscular contractures that stabilize the affected articulation while potentially impeding spontaneous restoration of physiological joint congruence.

The affected AxCFU may also act as a peripheral source of altered afferent input arising from proprioceptive, nociceptive, and other sensory components. AxB does not itself constitute Persistent Afferent Bias. Rather, persistent altered afferent input from an affected AxCFU may contribute to the emergence or maintenance of PAB within the broader SPP framework (Živný, 2026a, 2026b).

Because each AxCFU is mechanically and neurophysiologically interconnected with adjacent and functionally related units, an AxB may influence the loading, motor coordination, or afferent behavior of neighboring AxCFUs. This interdependence provides the basis for the frequent coexistence of multiple AxBs and their organization into AxBb Chains.

Defining Characteristics

An AxB is characterized by:

- a disturbance centered on a specific articulation of the AxO;
- a mechanical constraint associated with impaired physiological joint motion; and
- dysfunction of the corresponding AxCFU.

Altered articular congruence or malposition, reflex muscular stabilization, and altered peripheral afferent input represent mechanistic features of the AxB model. Their specific measurement and further validation remain research priorities.

Relationship of AxB to Related Constructs

The AxB construct overlaps with several established concepts in manual medicine, osteopathy, musculoskeletal medicine, and biomechanics, but is not intended as a replacement for or synonym of any of them. Models of somatic dysfunction describe multicomponent disturbances involving skeletal, articular, myofascial, vascular, lymphatic, and neural elements, whereas AxB is more narrowly defined as an articulation-centered disturbance within the AxO involving a mechanical constraint, impaired physiological joint motion, and dysfunction of the corresponding AxCFU (Tozzi, 2015; Potekhina et al., 2020).

Joint restriction, hypomobility, segmental dysfunction, and fixation overlap with the mechanical component of AxB but do not individually encompass the complete AxB construct. Similarly, AxB is not intended as a synonym for radiographically demonstrable or discipline-specific subluxation. Regional interdependence provides a broader principle by which dysfunction in one musculoskeletal region may influence another, whereas an AxBb Chain denotes a specific clinically observed organization of functionally interconnected AxBs within the AxO (Evans, 2002; Evans et al., 2002; Evans & Lucas, 2023; Sueki et al., 2013).

Table 1. Relationship of AxB to Related Constructs

Related construct	Principal overlap with AxB	Distinction from AxB
Somatic dysfunction	Multicomponent dysfunction involving skeletal, articular, myofascial, and associated neural or vascular elements	Broader than AxB. AxB is restricted to the AxO, centered on a specific articulation, and explicitly incorporates the corresponding AxCFU.

Related construct	Principal overlap with AxB	Distinction from AxB
Joint restriction / hypomobility	Impaired physiological joint motion	A descriptive mechanical finding rather than a complete functional construct. Restricted motion alone is insufficient to constitute an AxB.
Segmental dysfunction / fixation	Mechanical dysfunction or constraint affecting a motion segment	Overlaps with the mechanical core of AxB but does not necessarily encompass dysfunction of the complete AxCFU or its proposed role as a peripheral source of altered afferent input. AxB may also involve axial articulations outside the vertebral motion segments.
Subluxation	Altered positional or functional relationship of articular structures	AxB is not a synonym for radiographic, orthopedic, chiropractic, or other discipline-specific subluxation. Altered articular congruence, including malposition, is treated as a principal biomechanical feature within the AxB model but need not be radiographically demonstrable.
Regional interdependence	Mechanical or neurophysiological influence among adjacent or remote musculoskeletal regions	A broad relational principle. An AxBb Chain is a specific axial construct characterized by clinically observed interdependence, coordinated persistence or recurrence, and coordinated release of linked AxBs.

The novelty of AxB therefore does not lie in renaming joint restriction, fixation, or somatic dysfunction. It lies in integrating an articulation-centered mechanical disturbance with the AxCFU construct and in positioning the affected AxCFU as a potential peripheral source of altered afferent input within the broader SPP/PAB framework.

Statement 4. Multiple Axial Blocks (AxBb)

Primary Definition

***Axial Blocks (AxBb)** are defined as the concurrent presence of two or more AxBs affecting different articulations of the AxO.*

Commentary

In the clinical practice from which this framework was developed, isolated AxBs are exceptional, whereas multiple AxBs constitute the predominant clinical presentation. Owing to the continuous biomechanical and neurophysiological organization of the AxO, dysfunction of one AxCFU may alter the mechanical loading, muscle coordination, and afferent behavior of adjacent or functionally related AxCFUs, consistent with broader models of regional interdependence in musculoskeletal function (Sueki et al., 2013).

The term **AxBb** therefore refers specifically to the coexistence of multiple AxBs and should be distinguished from an AxBb Chain, which denotes a biomechanically and neurophysiologically interconnected organization of AxBs that behaves as an integrated functional unit.

Defining Characteristics

AxBb are characterized by the concurrent presence of two or more AxBs affecting distinct articulations of the AxO. The designation AxBb indicates multiplicity alone and does not necessarily imply that all identified AxBs belong to the same AxBb Chain.

Statement 5. AxBb Chain

Primary Definition

*An **AxBb Chain** is defined as a biomechanically and neurophysiologically interconnected network of AxBs that behaves as an integrated functional unit rather than as a simple collection of independent AxBs.*

Commentary

An **AxBb Chain** represents the clinically observed functional organization of multiple AxBs within the AxO. Individual AxBs within a chain do not behave as independent pathological entities but interact through the biomechanical continuity and neurophysiological integration of the AxO. Anatomical and experimental evidence supports the existence of myofascial continuity and mechanical force transmission between anatomically distinct but structurally connected regions (Wilke et al., 2018; Krause et al., 2016).

In the clinical practice from which this framework was developed, AxBb Chains are observed to persist and release as integrated functional units. Reduction of the constraints maintaining one or more key components of a chain may be accompanied by coordinated release of other linked AxBs, including components that have not been subjected to separate direct repositioning.

Conversely, treatment directed exclusively at a single AxB frequently produces incomplete correction or early recurrence when the remaining chain persists.

The expression *release as an integrated functional unit* does not necessarily imply simultaneous reposition of every affected articulation. It denotes a coordinated response occurring across multiple linked AxBs within the same resolution sequence. This reproducible chain-level behavior is regarded as a clinical expression of functional interdependence among its constituent AxBs.

Within the proposed pathophysiological model, mutual persistence and coordinated release of AxBs within a chain are attributed to reciprocal mechanical compensation, redistribution of loading and tension, altered muscle coordination, reflex muscular interactions, and altered peripheral afferent input. These mechanisms provide a proposed explanation for the clinically observed behavior of AxBb Chains but remain subject to direct biomechanical and neurophysiological validation.

Progressive extension of an AxBb Chain is also observed clinically, with additional AxBs developing particularly in AxCFUs adjacent to one or both ends of the existing chain. The model proposes that this pattern results primarily from compensatory overload imposed on these neighboring AxCFUs. Evidence that restriction or immobilization of one spinal motion segment can alter motion and mechanical demands in adjacent segments supports the biomechanical plausibility of this interpretation (Lee & Langrana, 1984; Malakoutian et al., 2015).

An AxBb Chain should therefore not be regarded as a simple collection of independent AxBs but as an integrated pathological functional system whose organization may be more stable than that of any individual component. Its tendency both to persist and to release in a coordinated manner constitutes a central clinical characteristic of the AxBb Chain construct.

Defining Characteristics

An AxBb Chain is characterized by:

- two or more AxBs affecting distinct articulations of the AxO;
- biomechanical or neurophysiological interdependence among the affected AxCFUs;
- coordinated persistence or recurrence of linked AxBs;
- coordinated release of multiple constituent AxBs within the same resolution sequence;
- a clinically observed tendency toward progressive extension, particularly through AxCFUs adjacent to one or both ends of the chain.

Terminology of AxB Resolution

Statements 6–10 distinguish the processes and outcomes that may be involved in the resolution of AxB/AxBb within the present framework. The sequence reflects the clinical logic from which these terms were developed and is intended to standardize terminology, not to prescribe a universal treatment protocol or establish therapeutic efficacy. Not every AxB is assumed to pass through every stage: reposition applies specifically when altered articular congruence is present or inferred, whereas resolution of a mechanically constrained AxB without demonstrable malposition may occur without a distinct reposition stage.

Statement 6. Mobilization

Primary Definition

Mobilization is defined as the restoration of sufficient physiological joint mobility required for subsequent unblocking.

Commentary

Mobilization restores sufficient physiological joint mobility to permit subsequent unblocking of the articulation. It does not itself restore normal joint congruence but creates the biomechanical conditions necessary for disengagement of the entrapped articular surfaces.

Within the clinical resolution sequence underlying this framework, mobilization follows adequate reduction of reflex muscular stabilization, since excessive muscle tension may prevent restoration of physiological joint mobility or increase the risk of tissue injury during manual intervention. Spinal mobilization has been associated with reductions in spinal stiffness and changes in muscle function and neurophysiological responses, while available evidence does not consistently demonstrate corresponding changes in segmental vertebral movement (Lascurain-Aguirrebeña et al., 2016). Consequently, successful mobilization represents an intermediate biomechanical step between reduction of reflex muscular stabilization and unblocking of the affected articulation.

Defining Characteristics

Successful mobilization is characterized by:

- restoration of sufficient physiological joint mobility; and
- reduction of the mechanical restriction to a degree sufficient to permit subsequent unblocking.

Restoration of physiological joint congruence is not a defining requirement of mobilization and, when applicable, constitutes a distinct subsequent process of reposition.

Statement 7. Unblocking

Primary Definition

***Unblocking** is defined as the release of an entrapped articulation following restoration of sufficient joint mobility.*

Commentary

Unblocking represents the biomechanical release of an entrapped articulation. Within the proposed resolution sequence, it follows successful mobilization. When altered articular congruence is present or inferred, unblocking enables subsequent reposition of the articular surfaces without itself restoring their physiological congruence.

The biomechanical objective of unblocking is to remove the mechanical constraint preventing physiological movement of the articulation. Once the entrapped articular surfaces have been released, subsequent reposition, when required, may occur spontaneously or may require externally applied repositioning forces. The distinction between release of an entrapped articulation and subsequent reposition is consistent with biomechanical models of manipulation that describe joint gapping, release of entrapped intra-articular structures, and “unbuckling” of mechanically restricted motion segments as distinct mechanical phenomena (Evans, 2002; Evans & Lucas, 2023).

Because successful unblocking requires sufficient physiological joint mobility, restoration of mobility constitutes a prerequisite rather than a consequence of unblocking. Within the proposed resolution sequence, reduction of reflex muscular stabilization is followed by mobilization and unblocking, with reposition constituting a subsequent distinct process when altered articular congruence is present or inferred.

Defining Characteristics

Successful unblocking is characterized by:

- release of the entrapped articulation;
- removal of the mechanical constraint preventing physiological joint movement; and
- creation of the biomechanical conditions permitting subsequent reposition when required.

Statement 8. Spontaneous Reposition of AxB/AxBb

Primary Definition

Spontaneous reposition of an AxB or AxBb is defined as the restoration of physiological congruence of the affected articular surfaces without externally applied repositioning forces, occurring when the biomechanical constraints maintaining the block or blocks become insufficient to prevent spontaneous restoration of physiological joint congruence.

Commentary

Spontaneous reposition may occur without external intervention, particularly in transient AxB/AxBb in which the biomechanical fixation is weak and reflex muscular contractures are limited. Reduced baseline muscle tone, including muscular hypotonia, may further decrease the stabilizing forces maintaining articular malposition and thereby facilitate spontaneous reposition.

Spontaneous reposition may also occur following an initial therapeutic phase directed at reducing reflex muscular stabilization and restoring segmental mobility. In such cases, treatment does not directly reposition the articular surfaces but removes or reduces the biomechanical constraints maintaining the AxB/AxBb, allowing physiological forces within the AxO to complete the reposition spontaneously. The biomechanical plausibility of this mechanism is consistent with the Minimum Energy Hypothesis, which proposes that the spine may spontaneously assume a more mechanically favorable configuration when constraints preventing such reposition are sufficiently reduced or removed (Evans et al., 2002).

In persistent AxB/AxBb, spontaneous reposition is less common because established muscular contractures, altered biomechanics, and interactions within AxBb Chains provide greater resistance to spontaneous restoration of physiological joint congruence. Nevertheless, spontaneous reposition may occur when these maintaining mechanisms are sufficiently reduced, either naturally or therapeutically.

Defining Characteristics

Spontaneous reposition of an AxB/AxBb is characterized by:

- restoration of physiological congruence of the affected articular surfaces;
- correction of the preceding altered articular congruence, including malposition where present; and
- absence of externally applied repositioning forces at the time of reposition.

Statement 9. Reposition

Primary Definition

Reposition is defined as the restoration of physiological congruence of the articular surfaces following successful unblocking.

Commentary

Reposition restores physiological congruence of the articular surfaces after successful unblocking. Within the AxB framework, it applies to cases in which altered articular congruence is present or inferred. Reposition corrects this articular relationship but does not in itself constitute complete functional recovery of the corresponding AxCFU.

Successful reposition re-establishes the anatomical conditions required for physiological joint biomechanics, thereby permitting progressive normalization of muscle coordination, afferent signaling, and other functional properties of the AxCFU. Functional restoration therefore represents a subsequent biological process rather than an immediate consequence of reposition.

Reposition may occur spontaneously or may be achieved through externally applied manual manipulative forces. Spontaneous reposition occurs when the biomechanical constraints maintaining an AxB/AxBb have been sufficiently reduced to allow physiological forces within the AxO to restore joint congruence without externally applied repositioning forces, as defined separately in Statement 8. When spontaneous reposition does not occur, manual reposition may be required to guide the articular surfaces into their physiological relationship. Immediate mechanical changes following spinal manipulation, including transient increases in lumbar facet joint space and reductions in spinal stiffness, have been reported, although current evidence does not establish restoration of vertebral or articular position (Young et al., 2024). These findings are therefore compatible with, but do not directly demonstrate, externally assisted reposition as defined in this position paper.

Regardless of whether reposition occurs spontaneously or is externally assisted, its defining outcome is the restoration of physiological joint congruence. The mechanism by which this state is achieved does not alter the definition of reposition itself.

Defining Characteristics

Successful reposition is characterized by:

- restoration of physiological joint congruence;

- correction of the preceding altered articular relationship, including malposition where present; and
- occurrence following successful unblocking, whether spontaneously or through externally applied repositioning forces.

Statement 10. Functional Restoration of the AxCFU

Primary Definition

Functional restoration of the AxCFU is defined as the recovery of its normal biomechanical function, physiological afferent signaling, and sensorimotor integration following resolution of the AxB-related mechanical disturbance, including successful reposition when altered articular congruence is present.

Commentary

Functional restoration of the AxCFU represents the ultimate biological outcome following resolution of an AxB-related mechanical disturbance. When altered articular congruence is present, successful reposition restores the relevant articular relationship; complete recovery of AxCFU function may nevertheless require subsequent normalization of biomechanical behavior, muscle coordination, peripheral afferent input, and sensorimotor integration.

Functional recovery may not occur immediately after resolution of the mechanical disturbance, including reposition when applicable. Particularly in chronic AxBb Chains, prolonged abnormal biomechanics and altered afferent input may have induced adaptive changes within the AxCFU and at higher levels of sensorimotor regulation. Resolution of the AxB-related mechanical disturbance, including restoration of physiological joint congruence where applicable, should therefore be regarded as a prerequisite for, rather than the endpoint of, complete functional recovery.

Where an AxB contributes to altered afferent input, functional restoration of the affected AxCFU should reduce or remove that local peripheral contribution. Whether this change is sufficient to modify Persistent Afferent Bias (PAB), reverse previously established central adaptations, or alter downstream regulatory consequences remains an empirical question (Živný, 2026b).

Defining Characteristics

Functional restoration of the AxCFU is characterized by:

- restoration of physiological biomechanical behavior of the affected AxCFU;
- normalization of physiological muscle coordination;
- normalization of peripheral afferent input, where previously altered; and
- restoration of physiological sensorimotor integration.

Limitations and Research Priorities

This position paper is primarily nomenclatural. It defines terms derived from recurring clinical observations and integrates them with available anatomical, biomechanical, and neurophysiological evidence. It does not constitute a validation study. Several central features of the AxB framework—including altered articular congruence, AxB-related changes in peripheral afferent input, and the distinctions among mobilization, unblocking, spontaneous reposition, externally assisted reposition, and functional restoration—have not yet been directly measured as a unified biomechanical and neurophysiological sequence.

The predominance of AxBb over isolated AxB, the persistence and coordinated release of AxBb Chains, and their progressive extension are recurrent clinical observations underlying the present framework. Their frequency, reproducibility, and temporal dynamics have not yet been quantified prospectively. Likewise, the extent to which resolution of an AxB-related mechanical disturbance modifies peripheral afferent input, Persistent Afferent Bias, or downstream sensorimotor and autonomic consequences remains to be established.

Future research should prioritize:

- assessment of the intra-rater and inter-rater reliability of clinical AxB, AxBb, and AxBb Chain identification;
- instrumented characterization of segmental mechanical constraint, altered articular congruence, and periarticular muscular stabilization;
- direct investigation of proprioceptive, nociceptive, and other peripheral afferent changes associated with AxB;
- prospective mapping of AxBb Chain persistence, coordinated release, recurrence, and progressive extension;
- empirical differentiation of mobilization, unblocking, spontaneous reposition, externally assisted reposition, and subsequent functional restoration; and
- investigation of whether changes in AxB/AxBb precede and predict changes in PAB-related, sensorimotor, autonomic, or clinical outcomes.

The definitions introduced in this paper provide a common terminology through which these questions can be investigated systematically and compared across future clinical and experimental studies.

Conclusion

This position paper establishes a unified terminology for the Axial Organ (AxO), the Axial Corresponding Functional Unit (AxCFU), Axial Block (AxB), Axial Blocks (AxBb), and AxBb Chains, together with the processes and outcomes associated with AxB resolution. AxB is defined as an articulation-centered functional disorder of an AxCFU characterized by a mechanical constraint and impaired physiological joint motion. Within the proposed pathophysiological model, altered articular congruence, including transient or persistent malposition, represents a principal biomechanical feature, while the affected AxCFU may act as a peripheral source of altered afferent input. AxB does not itself constitute Persistent Afferent Bias (PAB), but persistent altered input arising from an affected AxCFU may contribute to its emergence or maintenance within the broader SPP framework.

In the clinical practice from which this framework was developed, isolated AxBs are exceptional, whereas AxBb constitute the predominant presentation. AxBb may organize into AxBb Chains that behave as integrated functional units, demonstrating coordinated persistence, recurrence, release, and progressive extension. The distinction between AxBb and an AxBb Chain is therefore fundamental: AxBb denotes multiplicity, whereas an AxBb Chain denotes functional interdependence among individual AxBs.

The paper further distinguishes mobilization, unblocking, spontaneous reposition, reposition, and functional restoration of the AxCFU as separate biomechanical processes or outcomes. These distinctions aim to standardize terminology rather than prescribe a universal treatment protocol or establish therapeutic efficacy. The proposed nomenclature provides a coherent basis for future clinical and experimental research examining the reliability, biomechanical and neurophysiological correlates, chain-level behavior, and wider regulatory significance of AxB/AxBb.

Summary of Definitions

Table 2. Primary definitions introduced in the AxB framework

Stat.	Defined term	Primary Definition
1	Axial Organ (AxO)	<i>For the purposes of this position paper, the Axial Organ (AxO) is defined as the continuous biomechanical and neurophysiological system extending from the pelvic ring through the vertebral column, the rib cage, including its articulations, and the craniovertebral junction to the skull.</i>
2	Axial Corresponding Functional Unit (AxCFU)	<i>For the purposes of this position paper, the Axial Corresponding Functional Unit (AxCFU) is defined as the integrated anatomical and functional complex associated with a specific articulation of the AxO, comprising all structural and functional components required for its normal biomechanical function, sensorimotor control, and physiological afferent signaling.</i>
3	Axial Block (AxB)	<i>An Axial Block (AxB) is defined as an articulation-centered functional disorder of an AxCFU, characterized by a mechanical constraint and impaired physiological joint motion; within the proposed pathophysiological model, altered articular congruence, including transient or persistent malposition, represents a principal biomechanical feature, while the affected AxCFU may act as a peripheral source of altered afferent input.</i>
4	Multiple Axial Blocks (AxBb)	<i>Axial Blocks (AxBb) are defined as the concurrent presence of two or more AxBs affecting different articulations of the AxO.</i>
5	AxBb Chain	<i>An AxBb Chain is defined as a biomechanically and neurophysiologically interconnected network of AxBs that behaves as an integrated functional unit rather than as a simple collection of independent AxBs.</i>
6	Mobilization	<i>Mobilization is defined as the restoration of sufficient physiological joint mobility required for subsequent unblocking.</i>
7	Unblocking	<i>Unblocking is defined as the release of an entrapped articulation following restoration of sufficient joint mobility.</i>
8	Spontaneous Reposition of AxB/AxBb	<i>Spontaneous reposition of an AxB or AxBb is defined as the restoration of physiological congruence of the affected articular surfaces without externally applied repositioning forces, occurring when the biomechanical constraints maintaining the block or blocks become insufficient to prevent spontaneous restoration of physiological joint congruence.</i>
9	Reposition	<i>Reposition is defined as the restoration of physiological congruence of the articular surfaces following successful unblocking.</i>
10	Functional Restoration of the AxCFU	<i>Functional restoration of the AxCFU is defined as the recovery of its normal biomechanical function, physiological afferent signaling, and sensorimotor integration following resolution of the AxB-related mechanical disturbance, including successful reposition when altered articular congruence is present.</i>

CRedit Author Statement

Boris Živný: Conceptualization, Methodology, Project administration, Writing – original draft, Writing – review & editing.

Veronika Živná: Conceptualization, Methodology, Writing – review & editing.

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Conflict of Interest

The authors developed the AxB framework and are affiliated with the SPP Institute and NeuroCentrum Clinic, where related clinical and research activities are conducted. This institutional and intellectual involvement is disclosed for transparency. The authors declare that the work was conducted in the absence of any other commercial or financial relationships that could be construed as a potential conflict of interest.

Data Availability Statement

No new datasets were generated or analyzed in the preparation of this position paper. All published sources supporting the framework are cited in the manuscript. Further inquiries may be directed to the corresponding author.

Ethics Statement

Ethics approval was not required because this position paper does not report original research involving human participants, identifiable personal data, or animals. Recurring clinical observations are discussed only at a conceptual and aggregate level, and no participant-level or identifiable information is presented.

Generative AI statement

The authors declare that Generative AI was used in the preparation of this manuscript. Generative AI tools were used for language editing, stylistic refinement, organizational clarity, and literature-search assistance. All conceptual content, definitions, interpretations, and conclusions were critically reviewed and approved by the authors, who assume full responsibility for the content of this manuscript.

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